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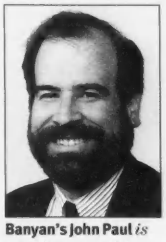
COMPUTERWORLD

Banyan opens up StreetTalk

By Laura DiDio
WESTBORO, MASS.



Banyan's John Paul *is opening new vistas for StreetTalk*

After keeping its Vines network operating system closed and proprietary for years, Banyan Systems, Inc. is doing an about-face designed to position its directory services as the de facto industry standard. It is going to give away its crown jewel, StreetTalk, for free.

The plan is to package StreetTalk directory services' source and binary code into a comprehensive tool kit code-named Directory Application Programming Interface, or DAPI. The free kit will be available to all software developers by midyear, according to John Paul, the company's senior vice president of business development.

Paul said the StreetTalk DAPI will be far more than just

Banyan, *page 16*

Big Blue deja vu

IBM revamp cleans house, pleases users

By Craig Stedman
and Thomas Hoffman

As Chairman Louis V. Gerstner's drive to recentralize IBM reached new heights last week, customers at large shops said they hope the reorganization will make it easier to deal with IBM by streamlining its infamous bureaucracy.

RESTRUCTURING IBM

The latest revamp included the departure of two high-profile senior vice presidents and the consolidation of most of IBM's software divisions into one group. That leaves the company with three main product groups responsible for servers, desktop systems and software.

Gerstner also eliminated the separate U.S. and overseas sales operations in an attempt to reorient the computer giant toward a more global business approach.

"I'm thrilled to death that they're changing to meet our needs better," said Sheleen Q. Fryer, senior vice president and chief information officer at Blue Cross/Blue Shield of Illinois in Chicago. "This is going to help the customer have clearer access, and it should simplify how IBM can find things within its own organization."

"We're all dealing with worldwide issues, and having functions duplicated over multiple places isn't in the best interests of the

IBM, *page 105*

Do you think IBM's move to a more centralized business model, as opposed to the decentralized model favored in the past, has made the company stronger or weaker?

COMPUTERWORLD User Pulse EXCLUSIVE SURVEY

BASE: 100 IBM SHOPS

Microsoft rivals seek to overturn antitrust deal

By Mitch Betts
WASHINGTON

Last July's proposed antitrust settlement between the U.S. Department of Justice and Microsoft Corp. may not be rubber-stamped by the court after all.

U.S. District Court Judge Stanley Sporkin has asked for more information from all parties and the public before signing the decree, which many in the industry have criticized as ineffective [CW, July 25, 1994]. A public hearing is scheduled for Friday.

Sporkin said he wants a full explanation of why the department's Antitrust Division dropped certain charges and focused only on the OEM licensing practices of Redmond-Wash.-based Microsoft. "I don't want to look like a patsy here," Sporkin said, according to a transcript of the Nov. 2, 1994, courtroom meeting on the case.

Last week, in response to Sporkin's request, a cabal of Microsoft rivals filed an eleventh-hour brief in an attempt to derail the settlement. Gary L. Reback, a partner at the Palo Alto, Calif., law firm Wil-

Microsoft, *page 14*

> The proposed decree "completely fails to address the consequences of the huge increase in installed base that Microsoft has procured through illegal means. Instead, the [Justice] Department simply proposes to shut the barn door now that the horse has already gone."
>
> **– Court filing by Microsoft rivals**

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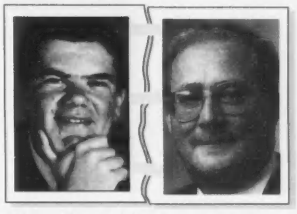
Borland replays musical chairs

By William Brandel

Meet the new boss. Same as the old boss.

For Borland International, Inc., those lines from The Who song came true last week as Gary Wetsel was named president of the company. He replaced Philippe Kahn, who bowed to Wall Street pressure and resigned as president and chief executive officer.



Philippe Kahn *(left) will remain chairman of the board while* **Gary Wetsel** *(right) becomes president*

But while Kahn gave up two titles, he retained the highly influential position of chairman of the board. Analysts expressed dismay that Kahn remains so closely involved.

Wetsel was hired in October to be chief financial officer at the Scotts Valley, Calif., company. His ascension to the top job comes on the heels of his December promotion to executive vice president of operations. He replaced former Chief Operating Officer Keith Maib, who had resigned three weeks earlier.

Wetsel said he would announce next week a new restructuring plan for Borland — the third such plan in two years.

The plan, which Borland's board approved in principle almost two weeks ago, includes the intention to sell off the Simplified consumer

Borland, *page 16*

PC pains get fixed-price remedy

By Julia King

Unwilling to shell out millions to build top-notch IS support organizations in-house, an increasing number of companies are enlisting service providers for one-stop, cradle-to-grave care of PC hardware and software.

As part of the bargain, many information systems executives are finally getting a grip on out-of-control PC life cycle costs, which Gartner Group, Inc. has estimated at $40,000 per desktop over five years.

Procter & Gamble Co. in Cincinnati, Georgia-Pacific Corp. in Atlanta and Piper-Jaffrey, Inc., a large regional brokerage firm in Minneapolis, have all recently signed fixed-rate, multiyear desktop support contracts. The services furnished under the deals include hardware and software installation and upgrades, asset inventory and management, LAN and electronic-mail administration and centralized help desk support.

Piper-Jaffrey's contract with Entex Information Services, Inc. "involves everything from soup to nuts," said David Collins, the broker-

PC pains, *page 14*

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What's Inside

January 16, 1995

Client/server evolves

Until integrated client/server systems management becomes a reality, some companies are divvying up the responsibility for networks, systems and applications any way they can. **In Depth, Page 77.**

Client/server technology is reshaping the human resources function at leading-edge companies. Now systems are helping HR to be proactive and more effective. **Closer Look, Page 61.**

NEWS

■ A start-up firm may pave the road for using **messaging architectures** for data transfer, making life easier for IS managers with disparate network protocols. *Page 4*

■ Grand Junction and Chipcom announce **low-cost hubs** that are said to increase network flexibility for users. *Page 10*

■ **Sun's** road map for 1995 includes adding PC connectivity to network management, beefing up object-based products and starting new ventures. *Page 12*

COMPUTER INDUSTRY

■ **OpenVision** is beset by slipping delivery dates and pressure from users. *Page 24*

DESKTOP COMPUTING

■ Adobe's efforts to woo vertical development with **Acrobat** portable document technology make sense to users. *Page 41*

WORKGROUP COMPUTING

■ IBM positions its **peer-to-peer** technology for OS/2. *Page 47*

ENTERPRISE NETWORKING

■ Novell offers Version 3.0 of its **Multiprotocol Router Software**, a set of NetWare Loadable Modules. *Page 58*

LARGE SYSTEMS

■ Computer Associates launches a **knowledge-based manufacturing** suite. *Page 62*

APPLICATION DEVELOPMENT

■ After several months of hints and sneak peeks, **Oracle** will unveil PC-based development tools and databases. *Page 67*

How do you measure up?

How does your IS department compare to the Computerworld *Premier 100*? Fill out the Premier 100 survey and we'll send you a free report showing how your operation compares to the Premier 100 averages. Consolidated information from the surveys we collect may be published in a future *Premier 100* issue. Send a request on company letterhead to Paul Gillin, Editor, Computerworld, 375 Cochituate Road, Framingham, Mass. 01701 or E-mail to survey@cw.com.

CAREERS

■ Companies continue to hold the line on costs, say **compensation** analysts, who estimate this year's average raise at about 4.1%. *Page 85*

Claudio Edinger

Power has its limits, especially for managers at employee-owned companies. The biggest challenge, Avis' **David McNicholas** says, can be persuading employees to let the managers manage. See **Management,** Page 71

MARKETPLACE

■ When the **Bank of Boston** decided to retool its branch banking infrastructure, it determined where IS could add value and outsourced the rest of the work. *Page 95*

COMMENTARY

■ **Charles Babcock** says users must watch for pitfalls in the differences among the varied approaches to inheritance. *Page 8*

■ **Bill Laberis** ponders the fate of OS/2 in a restructured IBM. *Page 36*

■ **Michael Schrage** says E-mail is taking on new importance, with people looking to it as much for verification as for information. *Page 37*

■ **Marc Dodge** learned a hard lesson — IS needs user input for the sales pitch, not just the planning. *Page 37*

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Executive Briefing

IBM customers seem to like what they see in company Chairman Louis V. Gerstner's ongoing efforts to recentralize the firm, even though those same users believe it will take time before they see solid benefits from Gerstner's work. Users hope Gerstner can continue to **streamline the bureaucracy** that IBM built up over the years. Last week's reorganization included the replacement of retiring senior vice presidents Ellen Hancock and Robert LaBant with John Thompson in Hancock's networking and systems software slot and Ned Lautenbach in LaBant's sales position. *Page 1*

While Borland is trying to position itself as a restructured company, analysts are less than convinced that it will be anything but business as usual at the beleaguered company. **Philippe Kahn** stepped down as president and CEO but will stay on board as chairman. *Page 1*

Wireless networks are hot at a couple of user sites. Philadelphia Gas Works is heading into the second year of a massive systems conversion to wireless technology on budget and ahead of schedule. **Stanford University** is testing a prototype wireless network that will allow hundreds of students and faculty members to log on from portable PCs. If successful, the test opens the gates toward ubiquitous computing from dorm rooms, library study carrels, campus lawns and park benches. *Page 53*

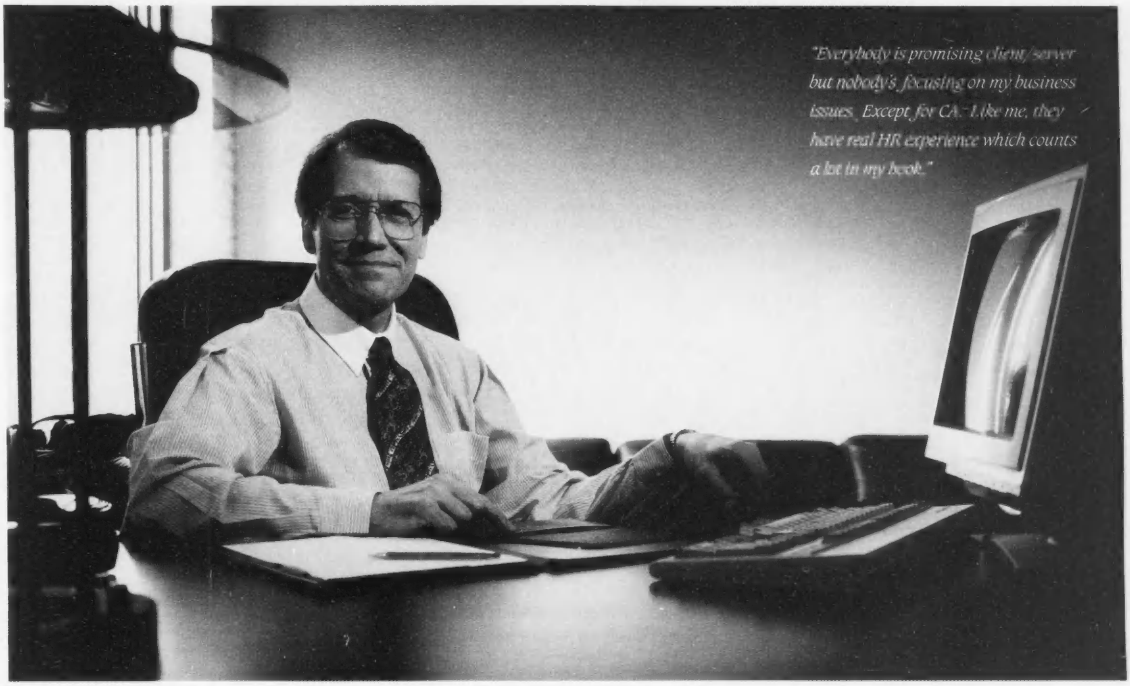
Large companies are increasingly turning to a new breed of one-stop service providers to tame out-of-control desktop hardware and software support costs. Several firms recently signed **fixed-rate, multiyear desktop support** contracts. Services include hardware and software installation and upgrades, asset inventory and management, LAN and E-mail administration and centralized help desk support. *Page 1*

Seer Technologies has won a patent on its core application development technology. If Seer rigorously **enforces the patent**, a broad array of client/server vendors and users could be affected. *Page 6*

When the re-engineering team at Hoechst Celanese became closed to new team members, it risked unraveling the entire project. *Page 74*

The 5th Wave *by* Rich Tennant

While Everyone Jumps On The Client/Server Bandwagon, Allow Us To Introduce Something Better.



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Microsoft addresses Pentium flaw

By Stuart J. Johnston

■ Microsoft Corp. last week said it will release free software for Windows and Windows NT that will enable users to emulate the Intel Corp. Pentium chip's floating-point functions in memory.

The software, which will be provided at the end of the month, lets users securely run programs that use floating-point math on machines with the flawed Pentium chip, said Carl Stork, Microsoft's director of Windows platform development.

The software patch is not for everyone. It is primarily designed for people who are not heavy users of floating-point math and are in situations where extremely high precision is not necessary.

Handling floating-point operations in software rather than in hardware imposes a performance penalty on users of programs that intensively use floating-point routines.

"If I'm designing airplanes or trading stock futures, I'd have my Pentium replaced," Stork said.

"We will definitely use" the emulation software, said Arthur Tisi, chief information officer at the Metropolitan Museum of Art in New York. Although he added, "We don't have a ton" of Pentium-based PCs. The museum uses Pentiums for some budgetary and noncritical trend analyses, he said.

The Microsoft software patches for NT or Windows 3.x can be used two ways. Users can have them automatically check the chip to see if it contains the division flaw and use the software routines if it does. Alternately, they can have the chip always use the software.

Microsoft sees the patch as an opportunity to provide users with an extra safety net. Users will be able to download the patch from the company's on-line services on CompuServe, General Electric Network for Information Exchange, Microsoft OnLine and on the firm's file transfer protocol server on the Internet. It will also be available to PC OEMs for preinstallation on Pentium-based systems. Similar code will be included with Windows 95, Stork said.

Wireless gets Complex

Vendor updates EMS middleware to ease network development

By Michael Fitzgerald

A little-known maker of middleware may have the answer to user questions about how to develop for wireless networks.

Complex Architectures, Inc., a 4-year-old Wakefield, Mass., company, is touting its Enterprise Messaging Services (EMS) middleware as a way to let corporate developers avoid porting applications in order for them to run over disparate wireless networks.

The software, which began shipping last October, is also said to shield users from losing data due to network crashes or disconnects. While this is a clear advantage for mobile users, it also has interesting potential for internal corporate networks.

For example, EMS runs over all the major network protocols, which may in the future give corporations a single application programming interface for corporate networks based on disparate data transfer protocols, such as TCP/IP or Novell, Inc.'s SPX/IPX.

Middleware is software that sits between the physical layer of the network and the applications that run over it. It enables incompatible protocols, such as TCP/IP and SPX, to exchange information. Many middleware products, including EMS, provide an application layer that users can write to instead of writing to SPX or TCP/IP and porting the application to run over a different protocol.

What Complex Architectures' middleware purports to do

- Move "intelligence" from message envelope to network
- Reduce the number of APIs for developers
- Eliminate effect of network disconnects and crashes
- Increase system administrator's control over the network

Across the board

Complex Architectures is readying a new version of EMS that will add support for Transport Layer Interface and the Hayes AT command set. It will also add signaling and threading and support for real-time operating systems in the second quarter.

"We believe every network is unreliable, so we manage all of them," said John Martino, Complex Architectures' founder and chief executive officer. He predicted that in the next five years, corporations will move away from running applications on data transfer protocols such as TCP/IP or Advanced Peer-to-Peer Networking to distributed, messaging-based systems that do not require the user to be connected.

In the short term, this will help users struggling over which wireless network they should choose.

EMS "basically insulates us from whether we use [RAM Mobile Data USA L.P.'s Mobitex Network, Advanced Radio Data Information Services, Cellular Digital Packet Data] or even our own radio network" for wireless communications, said John Doucette, vice president of corporate services at Bay State Gas Co. in Westboro, Mass. The utility has 500 field personnel who it says would be better integrated into the corporate information technology environment if they had wireless communications. The company may choose to mix and match wireless networks, and "we didn't want to have to look at different protocols if we wanted to switch networks" or use multiple networks, Doucette said.

Doucette said he expects to begin piloting EMS next month. He said Complex Architectures had talked with him about using EMS instead of its current in-house data transfer protocols as well, but he said he would wait and see how it worked in the wireless environment.

Several analysts were skeptical that EMS or other messaging-oriented protocols will replace current data transfer environments, at least in the near term.

Rik Drummond, a principal at The Drummond Group in Fort Worth, Texas, said the concept of using asynchronous communications for data transfer "makes a lot of sense because the recipient doesn't have to be on-line to receive the message." This would let users connect and disconnect more easily from the network, a particular help for mobile workers.

Drummond said, however, that the current messaging infrastructure is not ready to handle large-scale data transfer. He said the messaging infrastructure is now being upgraded to handle the bulk of multimedia files. When this is complete, the messaging infrastructure may be better suited for data transfer.

Senior writer Suruchi Mohan contributed to this report.

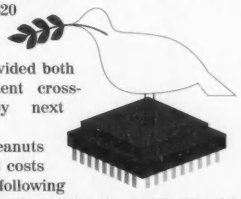
Intel, AMD end seven-year war

By Jaikumar Vijayan

In an abrupt end to one of the industry's longest-standing disputes, dueling chip makers Intel Corp. and Advanced Micro Devices, Inc. agreed last week to stop all litigation concerning the manufacture of clone microprocessors.

Under terms of the negotiated truce hammered out last week, Intel will receive $58 million as settlement for past damages stemming from AMD's use of Intel microcode in its 486 clones.

In the first part of the payment, AMD is to pay Intel a total of $38 million this month. However, because Intel had previously agreed to pay AMD a total of $18 million as ordered under an earlier arbitration for breach of contract, AMD will end up shelling out only $20 million immediately. The remaining $20 million will be paid to Intel provided both companies sign a patent cross-license agreement by next January.



The settlement is peanuts compared with the legal costs incurred on both sides following years of suits and countersuits. AMD estimated that the litigation has cost it more than $100 million. Analysts estimate that Intel would have spent the same amount.

At the heart of all this legal wrangling was Intel's long-standing claim that AMD had no legal right to manufacture clone chips after Intel unilaterally abrogated a technology-sharing agreement between the two companies in 1987.

Since then, both companies have dragged each other to court in a seesaw legal battle that has seen verdicts go both ways. The most recent round was won by Sunnyvale, Calif.-based AMD last month when the California Supreme Court upheld its right to use Intel microcode in its AM386 processor. Earlier last year, however, Santa Clara, Calif.-based Intel secured a favorable verdict against AMD regarding its use of a similar code in its next-generation 486 clones.

"They are probably just glad to get it over with," said Martin Reynolds, an analyst at Dataquest, Inc. in San Jose, Calif.

And the winner is...

As Intel and AMD sheathed their legal swords, analysts argued that neither side had gained much from the bitter and acrimonious battle. Even so, AMD appears at first glance to be the bigger winner.

For one thing, the settlement removes the legal cloud that has probably scared more systems vendors away from using AMD's chips, analysts said. "In an uncertain world, we have removed the single largest element of uncertainty," agreed Jerry Sanders, AMD's chairman and chief executive officer.

Other gains for AMD include the following:

- A perpetual license to the Intel microcode in the 80386 and 1486 microprocessors. While the license will probably be irrelevant as far as the now-obsolete 386 chip is concerned, it will allow AMD to continue cloning its big-selling and profitable 486 chips — without fear of legal retribution.
- Rights to a hitherto bitterly contested patent covering memory-management functions in microprocessors.

For its part, Intel, which had been seeking damages of more than $1 billion, finally settled for $40 million (the total settlement after it pays AMD $18 million).

But Intel did get AMD to agree to limit the number of clones it contracts to outside foundries to less than 20%. AMD also agreed it has no right to copy any other Intel microcode including the Pentium processor, next-generation P6 microcode and the recently arbitrated 486 in-circuit emulation code.

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ORACLE

Seer patent impact unclear

Plans for client/server app development patent vague

By Rosemary Cafasso and Ed Scannell

■ Seer Technologies, Inc. last week tossed a bomb into the client/server application development market that is just as likely to fizzle out as explode.

That bomb is a U.S. patent granted in March 1994 but announced only last week by the Cary, N.C.-based vendor. The patent would protect Seer's technologies and approaches to application development, including its modeling processes, the method by which it stores those models, the partitioning of programs and the distribution of code.

Depending on how extensively the patent is interpreted, it could have a widespread impact on developers and users involved in high-level client/server application development. But Seer sent out mixed signals last week about how inclusive the patent could be and what the company intends to do with it.

While Seer issued a statement saying the patent would allow it "to prevent competitors from including the technology in their products made, used or sold in the U.S.," it added that it had no plans to sue anyone. In fact, Seer said it had not evaluated competitors' approaches to software development closely enough to know whether anyone was infringing on its patent.

Big money

Seer said it has invested $130 million in its application development technologies.

"I think it's a publicity stunt," said James Johnson, chairman of The Standish Group International, Inc., a consultancy in Dennis, Mass. "My feeling is they are aiming their guns at the smaller companies like Dynasty and Forte."

Mark L. Gordon, a patent attorney at law firm Gordon & Clickson in Chicago, said there is no way to determine yet how damaging this patent could be for competitors. "Their problems for patentability may be that their viability must be done on a case by case basis," Gordon said. "There is no definitive track record to look at here that suggests they could apply this widely."

Others took a decidedly more caustic view of Seer's chances of leveraging its patent.

"Getting a patent these days is like getting a license to be a public nuisance. The Patent Office has never done a competent job at examining prior art," said Jeffrey Tarter, editor of "The Soft Letter" newsletter in Watertown, Mass.

Officials from Dynasty Technologies, Inc. in Naperville, Ill., and Forte Software, Inc. in Oakland, Calif., dismissed the Seer patent as having no impact on their businesses.

"I am laughing because we don't really care how they do it," said John Treacy, vice president of marketing at Dynasty, referring to Seer's approach to application development.

Will Samsung buy into AST?

By Michael Fitzgerald

Samsung Electronics Co. is close to purchasing a 20% stake in struggling AST Research, Inc., according to sources close to the companies.

The sources said negotiations were driven by mutual need. AST, buffeted by the PC price wars and indigestion from its acquisition of Tandy Corp.'s PC business, needs cash. Samsung wants to enter the U.S. PC market and shore up its notebook manufacturing business.

Officials at AST declined to comment on the rumor other than to say that Samsung is one of AST's strategic partners. A Samsung spokesman denied the rumors, calling the reports a "surprise."

However, well-placed sources inside AST confirmed that Samsung officials have been to the Irvine, Calif., headquarters of AST to discuss the deal.

"The question on everybody's lips is, 'Can you speak Korean?' But this has happened before [with other companies], and the deals haven't ended up happening," said one source inside AST.

Analysts said if the deal goes through, Samsung will probably look to expand its presence in AST over time. This would place it among the growing ranks of foreign companies that — having failed to establish themselves in the U.S., the world's largest PC market — have resorted to attempts to buy their way in.

"To get into the U.S. market today, it's almost impossible to start from the ground up," said Bruce Stephen, an analyst at International Data Corp. in Framingham, Mass.

Losses and layoffs

Sources near the company said AST expects to post a small loss for its quarter ended Dec. 31, 1994, and that it will expand its previously announced layoff plan, which would have seen 10% of its 6,900-employee workforce cut. One source said 200 to 500 people could be laid off as part of the previously announced plan, and another source said AST is considering laying off as much as another 15% of its workforce.

An AST spokeswoman said the layoffs will result from the closure of the company's Fountain Valley, Calif., manufacturing plant, which is now ramping down. She said no additional layoffs are anticipated.

Newark airport blackout exposes system flaws

By Thomas Hoffman
NEWARK, N.J.

Newark International Airport and its tenants were victimized twice last week — first by a construction gaffe that cut power cables feeding the airport's main terminals and then by poor disaster recovery planning that caught those affected with their pants down.

Last Monday, a construction crew driving 60-ft steel beams into the ground for a new parking deck inadvertently cut three 27kVA power cables, knocking out power to the airport's three main terminals.

They're grounded!

Date of incident	System/airport affected	Cause
Jan. 15, 1990	Nationwide AMR Sabre System	Software error
Jan. 4, 1991	New York Air Traffic Control	Network crash
June 10, 1991	Washington Air Traffic Control	Power outage
Oct. 16, 1992	New York Air Traffic Control	Software error
Feb. 28, 1994	Denver International Airport	Power surge
May 19, 1994	Detroit Metropolitan Airport	Hardware error

Source: Contingency Planning Research, Inc., White Plains, N.Y.

The blackout, which occurred at 8:30 a.m., forced the airport to shut down at 5 p.m. while Public Service Electric & Gas Co. utility crewmen worked through the night to install a 100-ft loop of cable to bypass the three damaged lines. Power was restored to the airport by 5 a.m. the following morning.

During the blackout, airline and rental car reservation systems in the terminals went down, forcing airlines to divert passengers to other East Coast airports and costing them millions of dollars in lost sales.

A spokesman for The Port Authority of New York & New Jersey, which owns and operates the airport, said the agency has called for a formal review of the incident, including a cost projection. The preliminary report is due later this month.

Puzzling issues raised

The incident raised several questions about the airport's tenuous infrastructure, such as why the hub's primary and auxiliary power sources are laid side by side in the same conduit.

"If you run cables in the same conduit, it's less expensive, but IS people learned years ago that if you have a primary telecommunications path and a backup path, you don't put them in the same physical location," explained Ken Brill, president of ComputerSite Engineering, Inc., a Santa Fe, N.M., disaster recovery consultancy.

In addition, the power configuration at Newark was put in place 25 years ago, long before diversified power and telecommunications feeds had become de rigueur. "The cost to diversify those cables in the original construction process would have been minimal," added Brill, founder of the Uninterruptible Uptime Users Group.

Along with its infrastructure problem, the airport seemed to have inadequate backup power supplies, such as uninterruptible power supplies and diesel generators, to keep the entire facility humming.

What remains unclear is what, if any, actions the information systems organizations of the affected airlines might take to prevent similar occurrences in the future. Requests for interviews with IS executives at Delta Air Lines in Atlanta and Continental Airlines in Houston were declined or went unanswered last week.

Newark Airport *lost millions of dollars in sales during a recent blackout that shut down its reservation systems*

During the crisis, airline agents whose computer reservation terminals went black after the power outage were left scrambling to direct passengers to New York's La Guardia Airport and John F. Kennedy International Airport as well as Philadelphia International Airport.

USAir agents at Newark, for instance, ended up calling the airline's main reservation centers in Syracuse, N.Y., and Charlotte, N.C., in an effort to redirect stranded passengers. The Arlington, Va.-based carrier then manually processed customers through Newark and doubled-up passengers on some of its flights, said Millie Valerio, a USAir customer service representative.

The incident resulted in 616 of Newark's 1,400 flights being canceled or rerouted to airports as far-flung as Bangor, Maine, and Chicago, said a spokeswoman for the Federal Aviation Administration in Washington.

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OLE's fragmented inheritance

At Comdex/Fall '94 in Las Vegas last November, I introduced a panel session by saying that Microsoft's Object Linking and Embedding (OLE) had a drawback for building large systems because it does not employ inheritance in the traditional object-oriented sense.

Oh yes it does, countered Mark Bramhall, a member of the panel addressing, "Getting to Distributed Objects," and a roomful of programmers and developers pricked up their ears.

Bramhall is technical director of Digital's ObjectBroker and Common Object Request Broker Architecture (CORBA)-related product line. He is also a liaison to Microsoft, so he is not a totally impartial witness. But given his role, he recognizes the value of inheritance, where one class of objects is able to quickly pick up the characteristics of predecessor classes.

In an object-oriented programming language such as Smalltalk or C++, the language keeps class libraries in order and builds appropriate objects from them. Much of the ordering and construction takes place out of sight, behind the syntax of the language.

There are several offsetting gains to the OLE pipe wrench methods.

Charles Babcock

Microsoft's "Common Object Model [COM] and OLE have no descriptive language like C++ that pulls things together," Bramhall said, but it achieves similar results by separating the object interfaces from the object implementation. Instead of connections being made under the covers at compile time, OLE objects have pointers added to the Iunknown interface that is common to all OLE objects. This approach is the software equivalent of hardwiring one object interface to another.

In this fashion, OLE objects can show a form of interface inheritance, Bramhall continued. The OLE programmer constructs a new object by selecting or adding to an interface hierarchy already used in existing objects. If the programmer uses a higher level of complexity, the object incorporates the interfaces that preceded it, and lower-level interfaces can still be invoked from the set.

There are other ways of gaining inheritance characteristics with OLE objects, although Bramhall acknowledged that separate programming steps are not necessarily what IS shops want.

"We've explained how all the dirty plumbing works, and what people want is a preplumbed house," he said.

There are several offsetting gains to the OLE pipe wrench methods. Before the advent of the Object Management Group's CORBA, Microsoft's OLE objects could be activated across Windows applications. With the specification of COM, those objects will be able to run on more of a cross-environment basis.

From a software vendor's point of view, the OLE approach allows objects to be distributed in binary form. Microsoft and third parties can sell objects to customers as shrink-wrapped binary code without giving away their source code (which could be easily copied or reverse-engineered).

In the end, I would say Bramhall makes as good a case as possible for OLE, but it must still be branded a fragmented form of inheritance. OLE's plumbing imposes a lot of responsibility on the IS professional to make connections that are made automatically in the object-oriented world.

And there are still some important differences between OLE and traditional object-oriented inheritance. Microsoft's method of linking interfaces by pointers, called aggregation, may function in ways similar to those of inheritance, but it remains dependent on programmers' inserting new pointers when changes are needed.

Inheritance, object-oriented style, lends itself to dynamic change in Smalltalk — a change in a class library is automatically picked up and incorporated with the next run of the system. Inheritance promotes the creation of new objects in Smalltalk and C++, and it holds out greater potential for code reuse.

Babcock is *Computerworld*'s technical editor. His MCI Mail address is 575-2737.

News Shorts

Microsoft licenses Mosaic Internet browser

Microsoft Corp. Chairman Bill Gates said last week that his company has licensed Mosaic software for browsing the World-Wide Web. The agreement with **Spyglass, Inc.** in Savoy, Ill., and the **National Center for Supercomputing Applications** will enable Microsoft to incorporate the technology into The Microsoft Network. Mosaic support will arrive in the fourth quarter, a few months after The Microsoft Network debuts, Gates said. Microsoft also announced an agreement with **UUNET Technologies, Inc.** for UUNET to build and operate a worldwide TCP/IP network that will provide Microsoft Network subscribers with direct access to the Internet.

Storage vice president steps down at Amdahl

Amdahl Corp. in Sunnyvale, Calif., confirmed that Erika Williams has resigned as vice president and general manager of its storage business by "mutual decision." Mainframe storage sales have been down, but Amdahl attributed that to product transitions. One array that analysts had expected to be available by now, a redundant arrays of inexpensive disks subsystem based on technology from **Encore Computer Corp.** in Fort Lauderdale, Fla., is "still a developmental product" and will probably not ship in volume this quarter, an Amdahl spokesman said.

UnixWare 2.0 delivered

Novell, Inc. last week formally announced details about UnixWare 2.0 and said volume deliveries are planned for late March. This major symmetrical multiprocessor server upgrade of UnixWare 1.1 was delayed several times last year due to "resource" problems, Novell officials said.

Halliburton Energy outsources

Houston-based **Halliburton Energy Services** has handed over information systems operations to **Andersen Consulting** in Chicago, **I-Net, Inc.** and **Power Computing Co.** in Dallas. The 10-year, $500 million arrangement hands application management to Andersen; PC, LAN and global telecommunications to I-Net; and data center operations to Power. About 220 of 266 of the Halliburton employees affected by the deal will be offered jobs by the outsourcers, Halliburton said.

Wal-Mart goes parallel

Wal-Mart Stores, Inc., the nation's largest retailer, has purchased a multimillion-dollar parallel processing system from **AT&T Global Information Solutions** in Dayton, Ohio. Bentonville, Ark.-based Wal-Mart, known for its use of computer technology to track business at its 2,729 stores, has installed an AT&T 3600 to manage its merchandise and inventory systems.

High-end tape on the way

Storage Technology Corp. in Louisville, Colo., is planning a wide-ranging product announcement on Feb. 7 that will include the introduction of its promised RedWood high-capacity tape drives. These will be able to store up to 25G bytes of data per cartridge using helical scan recording technology. StorageTek's Iceberg 9200 disk array is also expected to be augmented by new features. Separately, the company is combining subsidiaries **XL/Datacomp, Inc.** in Lisle, Ill., and **Lago Systems, Inc.** in Los Gatos, Calif., into one unit. It will be called StorageTek Distributed Systems Division, Inc.

IBM fiber optics go multicolor

A commercial prototype of fiber-optic technology from **IBM**'s research division uses multiple colors of light to send up to 20 simultaneous data streams over fiber, rather than the current technology's one stream at a time. Intended applications for MuxMaster include full-motion video, medical images and information superhighway access. **Morgan Stanley Group, Inc.** in New York is testing the technology for real-time mirroring.

SHORT TAKES **Oracle Corp.** plans to build mainframe data migration aids based on Smart DB Workbench from **Smart Corp.** in Palo Alto, Calif.... David Wetmore has resigned from Herndon, Va.-based **Legent Corp.** as chief operating officer and member of the board.... **Cisco Systems, Inc.** in San Jose, Calif., bought a minority stake in **International Network Services** (INS) in Mountain View, Calif., for an undisclosed sum. INS provides network planning, design and implementation services.... **Siemens Nixdorf Informationssysteme AG** in Paderborn, Germany, is negotiating to acquire **Pyramid Technology Corp.** in San Jose, Calif., which supplies it with massively parallel processors. Siemens Nixdorf already owns 17% of Pyramid.... A joint venture formed by **Informix Corp.** in Menlo Park, Calif., bought the database division assets and software licenses of Tokyo-based **ASCII Corp.** for roughly $42 million.... **Autodesk, Inc.** in San Rafael, Calif., has reorganized into five market groups to support specific industries.... **Sybase, Inc.** in Emeryville, Calif., said it started shipping SQL Server Manager, a PC-based utility designed to oversee local and remote Sybase databases, late last month.... **The Object Management Group** in Framingham, Mass., has adopted the Common Object Services Specification Vol. 2.... **Progress Software Corp.** in Waltham, Mass., last week said it acquired **Crescent Software, Inc.**, a Ridgefield, Conn., maker of Microsoft Visual Basic add-on software.

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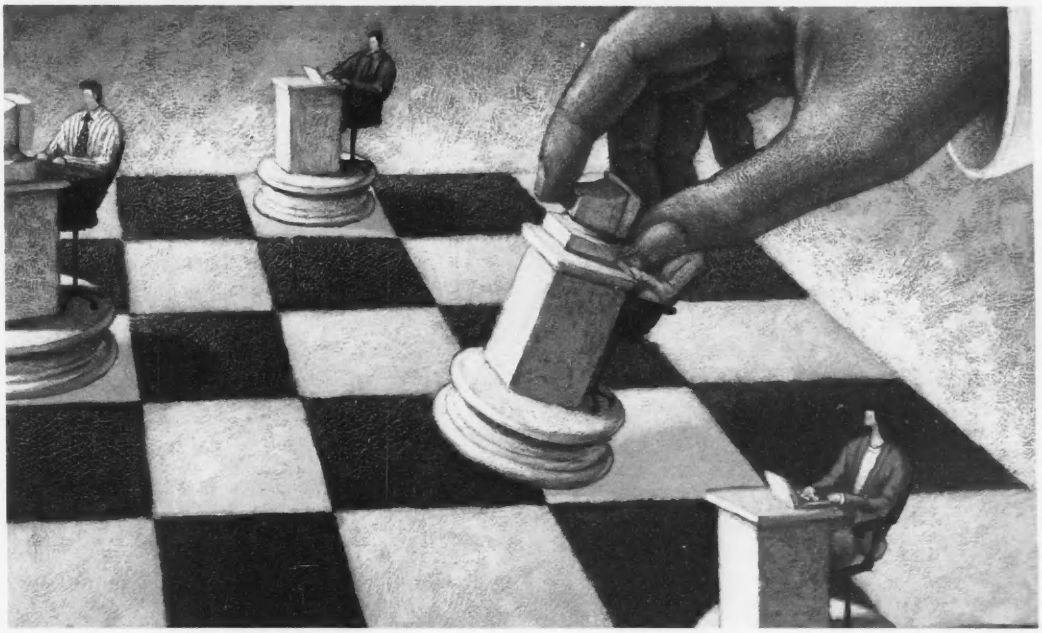

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New switching hubs offer greater flexibility

By Stephen P. Klett Jr.

Grand Junction Networks, Inc. and Chipcom Corp. each will unveil this week additions to their respective hub lines that are focused on giving users more flexibility when configuring networks.

Grand Junction will unwrap a new version of its FastSwitch 10/100 workgroup switch called the FastSwitch 10/100 ES. The $7,995 switching hub offers two modular 100M bit/sec. slots designed to provide flexible server and backbone connectivity and 25 10M bit/sec. dedicated Ethernet ports. It is available now.

Chipcom said it will unveil the ONsemble StackSystem family of stackable hubs for remote offices. These incorporate many features typically found in high-end chassis hubs, such as redundant power supplies, integrated switching and routing and Remote Network Monitoring management.

Grand Junction, based in Fremont, Calif., will also announce 100Base-FX optical fiber support for its switches, a 100Base-FX version of its Fasthub repeater and 100Base-FX adapter cards — all industry firsts. The 12-port hub costs $7,995 and will ship next month. The adapter cards start at $495 and will also ship next month.

The fiber support for 100M bit/sec., or "fast," Ethernet is crucial, analysts said, because Category-5 cabling restricted users to distances of 100 meters between nodes, which made it difficult to build large networks. Fiber cabling distances, however, are virtually unlimited.

In addition, the modular uplink slots will let users upgrade to new backbone technologies such as 100VG-AnyLan or Asynchronous Transfer Mode (ATM) as those interfaces become available without negating their initial hub investment.

The modular uplinks "are a very handy insurance policy, which is not to be sneezed at because the closer you get to the desktop the less you want to monkey with it," said John Carosella, a principal at Decisis, Inc., a consulting firm in Herndon, Va.

Beta site Minnesota Power and Light Co. in Duluth plans to install up to 12 of the switches in the next three years as part of a project to build a 100M bit/sec. fiber-optic backbone across its enterprise. "We really wanted 'fast' Ethernet with a fiber backbone, and only Grand Junction supports that," said Kurt Johnson, a systems programmer at the power company.

Fiber Distributed Data Interface modules for the FastSwitch 10/100 ES are slated for the third quarter. ATM modules will ship early next year, according to company officials.

Stack of options

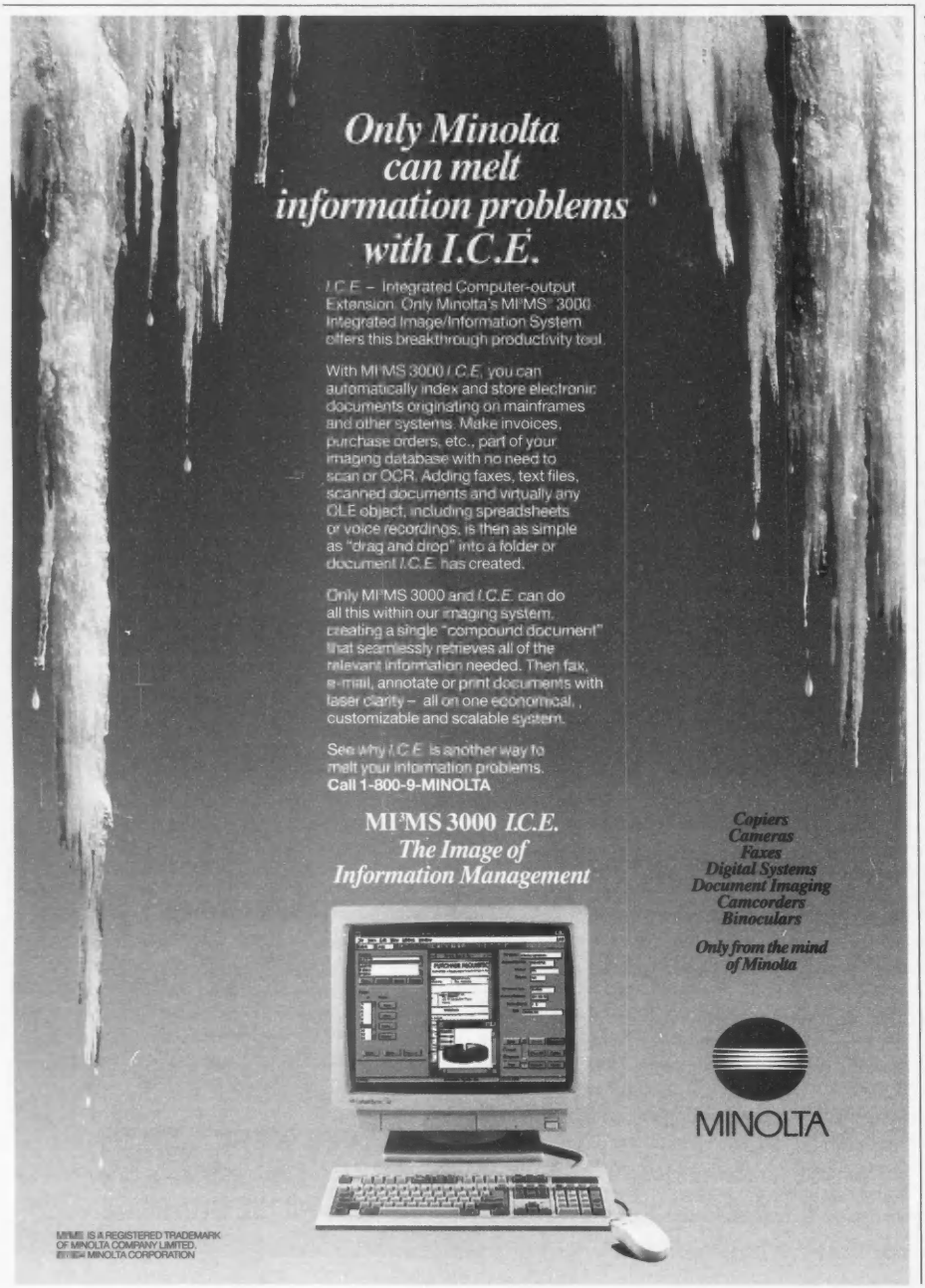
Chipcom's StackSystem line leverages internally developed Token Ring technology as well as Ethernet technology gained from the Southboro, Mass.-based company's acquisition of David Systems, Inc. last year.

Up to eight StackSystem hubs can be linked in a daisy chain in a single stack that can support 16 to 128 Token Ring users or 24 to 200 Ethernet users. StackSystem is scheduled to ship in the second quarter; prices start at $3,395 and $1,595 for Token Ring and Ethernet, respectively.

This scalability is attractive to Baptist Hospital, Inc., a Chipcom site in Nashville. Enterprise "hubs offer massive functionality, but you don't need all that for the remote office," said Wayne Arnold, manager of technical support. On the other hand, stackables "give you the flexibility to start small and grow as your needs change," he added. Baptist Hospital plans to use the stackables to connect as many as 18 remote sites during the next year, Arnold said.

"Until now, Chipcom's stackable offering was weak, so they have nowhere to go but up," said Tam Dell'Oro, an analyst at Dataquest, Inc. in San Jose, Calif. She said the StackSystem line rounds out Chipcom's core business, which remains focused on high-end customers.

Chipcom users can expect "fast" Ethernet, ATM and 100VG-AnyLan modules for StackSystem as well as switching modules by the end of the year.



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NetWare users get net management suites

By Steve Moore and Laura DiDio

Network and systems management options for users of Novell, Inc.'s NetWare became easier to buy and implement last week with the introduction of two product suites. One is jointly offered by Novell and Intel Corp.; the other was assembled by Saber Software Corp. in Dallas.

Provo, Utah-based Novell and Santa Clara, Calif.-based Intel introduced ManageWise, a suite that integrates Novell's NetWare Management System (NMS), NetWare Management Agent and NetWare LANalyzer Agent with Intel's LANDesk Manager and LANDesk Virus Protect.

Saber said it will combine four of its NetWare-oriented products into a competing suite called Saber LAN Management System for NetWare (see story below).

Reactions to ManageWise were mixed. Users and analysts welcomed the integration of two popular, complementary products but said ManageWise is too "Novell-centric" and falls short on database integration.

"If your primary goal is to manage Windows desktops in a way that is integrated with SNMP device management in a NetWare environment, ManageWise has a significant advantage on the competition," said Jamie Lewis, president of Burton Group in Salt Lake City. He added that this "casts NMS in the 'managed manager' role instead of the 'manager of managers' role" — meaning NMS remains a domain manager sitting below high-end platforms rather than competing with them.

"This announcement shows Novell is really thinking about the management space and putting marketing and packaging meat behind it," said Brad Hecht, network and systems management research analyst at Gartner Group, Inc. in Stamford, Conn. "Functionally, this product is nothing new," he said, adding that the vendors are taking two products, putting them on the same CD-ROM and selling them through the same channel.

Bob Dieckman, a sales manager at HEL Custom Software, Inc., a Novell platinum value-added reseller in Wayne, Pa., said combining NMS with Intel's LANDesk product "was a smart move since users need a more robust network management platform" than NMS.

"It's getting down to a blood war between Novell and Microsoft, and Novell needs a product like ManageWise to fend off Microsoft's Systems Management Server," he added. "Many of our customers are asking us about SMS."

"SMS is primarily a software distribution system," said John R. Rymer, editor of the "Distributed Computing Monitor" newsletter at Patricia Seybold Group in Boston. ManageWise does not include software distribution, so in that sense SMS is complementary, he said. "SMS is a very useful product, but it is not a comprehensive management solution."

Need for speed

On the server side, ManageWise requires an Intel Pentium-based PC running NetWare 3 or NetWare 4. On the client side, it requires Novell DR DOS 6.0, Novell DOS 7 or MS-DOS 3.3 or later, plus up to 11K bytes of system memory for terminate-and-stay-resident programs.

Prices match value

Rymer said Novell and Intel bit the bullet on pricing: While the separate packages had a combined price of about $8,000 for a small installation of five to 10 users, a five-user ManageWise license costs about $800. "This brings prices more into line with the value of these products," he added.

Steve Erde, director of academic computing at Cornell University Medical College in New York, said his shop does not intend to deploy ManageWise. "I just find it too Novell-centric for our heterogeneous environment," Erde said. ManageWise "doesn't support Apple Macintoshes or perform software updating on Unix platforms."

But another user who had previously used NMS and LANDesk separately was pleased. "It's a very good product overall, and Novell and Intel have integrated the features much better than I could have by slapping NMS and LANDesk together myself," said David Rankin, a computing consultant at the University of North Carolina at Chapel Hill and a ManageWise beta user.

"The area where LANDesk and NMS are least integrated is at the database level," Lewis said. While the two products do not share a common distributed management database, he noted, that problem is shared by almost every other management product on the market.

Novell introduces MPR Version 3.0. See page 58.

Saber seeks edge over Novell/Intel package

Saber Software is positioning its new Saber LAN Management System for NetWare (LMS) as a competitor to Novell and Intel's ManageWise packaged suite. LMS is a combination of four previously separate products: Saber LAN Workstations, Saber LAN Workstation for Macintosh Computers, Saber Enterprise Application Manager and Saber Software Developer's Kit.

"The biggest thing about LMS is that it can manage both servers and workstations in the same package," said Bob Reed, lead PC specialist at Sierra Health Services, Inc. in Las Vegas.

Because LMS supports Macintosh clients, "that gives Saber an advantage [over the Novell/Intel package] in areas where users must manage both Macs and PCs," said Jamie Lewis, president of the Burton Group in Salt Lake City.

—Steve Moore and Laura DiDio

Sun's 1995 road map to focus on PC connectivity

By Jean S. Bozman and Steve Moore
MOUNTAIN VIEW, CALIF.

Sun Microsystems, Inc.'s top executives last week spelled out their priorities for 1995, including the addition of PC connectivity to Sun's network management, an increasing number of object-based products and new ventures in interactive video.

Sun Chief Executive Officer Scott McNealy and SunSoft, Inc. President Ed Zander said they plan to build on Sun's Solaris Unix servers and network connectivity products to broaden the $4.7 billion firm's reach into corporate enterprises.

Customers at some large sites said many of Sun's goals dovetail with their own plans. But others have begun bringing other vendors' products into their shops.

"The biggest strategy shift we've had in the last year has been the embrace of the Intel/Microsoft/Novell world," McNealy said, referring to Unix servers' new role in PC LAN administration. He predicted the strongest growth for Sun this year will be in sales of low-end workstations, high-end Unix servers and consulting services.

Some fixes needed

But some users and analysts cautioned that Sun must fix some major problems this year as well. These include underpowered SPARC uniprocessors, development tools that do not address Windows application development and the upcoming shift from procedural to object-oriented software. Sun has answers for most of those agenda items, but some, such as UltraSPARC 64-bit microprocessors, will not be delivered until the second half of the year.

Key elements of the 1995 road map include the following:

- Announcement of the Solstice enterprise management platform on Jan. 30. Zander said Solstice will connect to Sun's SolarNet PC administration software, bringing PC LAN management onto enterprise consoles. Sun Chief Information Officer Bill Raduchel said Solstice will display data from SunNet Manager and the new Encompass object-based network manager [CW, Jan. 9], and will work with network management products from other vendors including IBM and Hewlett-Packard Co.
- Delivery of SunSoft's Distributed Objects Environment project, including new SunSoft Workshop C++ developer kits and delivery of OpenStep developer kits for Solaris. SunSoft shipped a preliminary development kit for OpenStep last spring, but it ran only on Next, Inc.'s NextStep operating system.
- The addition of Internet-capable hardware and software to much of its product line. The first example of that approach appeared with the introduction last year of Sun's Netra prepackaged Internet gateways, which include security firewalls.
- A push into interactive video, which builds on Sun's relationships with partners such as Siemens AG, Scientific-Atlanta, Inc. and CSF Thomson. Sun's video servers will be "tweaked" to add billing and customer management features, McNealy said.

Users at some large Sun sites said many of Sun's goals dovetail with their own plans.

"We've got SunNet Manager, and we're looking for more of the proactive features that are in Solstice," said Dennis Courtney, CIO at Dunlop Tire Corp. in Buffalo, N.Y. Solstice should allow Dunlop to centralize its network experts at headquarters and to maintain links to Japan and Europe in the event of a local network failure, Courtney said. The company, which has two factories and 10 regional centers, has six large Sun servers and 600 Windows-based PCs.

But some users — unwilling to wait for improved hardware price/performance, enhanced network management and delivery of object software tools — have begun bringing other vendors' products into Sun shops.

"Most of our developers who were using SPARCstations to develop applications are now developing on Pentium and 486 PCs," said Pompi Malik, MIS director at Brewers Retail, Inc., a beer distribution chain in Mississauga, Ontario. "The [software] tools are shifting toward Windows as their first deployment environment."

Analysts agreed that Sun is coming to grips with non-Unix environments by introducing Solstice and Encompass. But the migration from SunNet Manager to object-oriented Encompass may be bumpy for some SunOS users, said Brad Hecht, an analyst at Gartner Group, Inc. "They must first switch from [the] SunOS to Solaris [operating system] and then switch their management platform," he said.

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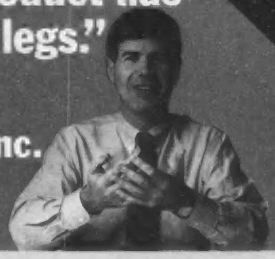

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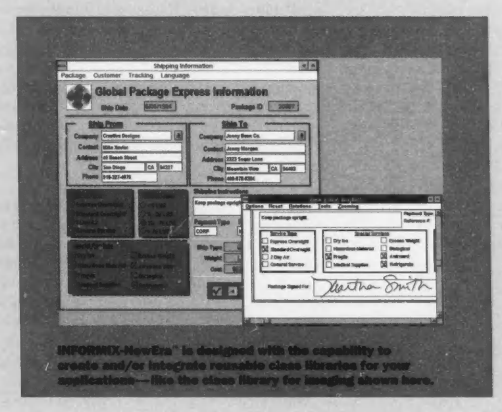

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PeopleSoft to extend financial apps, tools

By Rosemary Cafasso

PeopleSoft, Inc. last week extended its client/server software product line into a full suite by adding financial application modules and sketching out plans for additional tools and database support.

The Walnut Creek, Calif., company also said it will offer a tailored version of its financial software for the public sector market — its first vertical industry package.

Competitive edge

Industry observers said these moves will better enable PeopleSoft to combat its biggest competitors — SAP America, Inc. in Philadelphia and Oracle Corp. in Redwood Shores, Calif.

Of PeopleSoft's 600 customers, about 125 use its financial applications.

"The movement to vertical [markets] is definitely important," said Clare Gillan, an analyst at International Data Corp. in Framingham, Mass. "In the general client/server market, competition is really nasty now. They are positioning themselves vs. the competition and showing where their products are stronger."

PeopleSoft added project costing and billing modules on the financial side and purchasing and inventory as two distribution modules last week. The company also said it will ship English Wizard, an English language front-end component for its query tools, later this year.

On the database front, it is committed to supporting IBM's DB2 on AIX and Hewlett-Packard Co.'s HP/UX by midyear.

The complete suite puts PeopleSoft more on par with SAP and Oracle, which are selling their full client/server lines as one-stop shopping for the enterprise.

PeopleSoft said it will continue to play up its end-user focus, including such issues as flexibility and ease of use.

The ease-of-use factor was a selling point for The Coastal Corp. in Houston, which recently installed some of PeopleSoft's financial software.

"We had accountants participate in the evaluation, and they liked the flexibility," said Kathy Lennon, director of corporate systems at Coastal. "From an information systems standpoint, we liked the fact that it was built from the ground up to be client/server. It isn't a mainframe legacy system shoehorned onto a PC and server."

Human resources staffs recruit client/server systems. See story page 61.

Microsoft rivals

CONTINUED FROM PAGE 1

son, Sonsini, Goodrich & Rosati who filed the brief, said the software companies involved were not named because they fear retaliation by Microsoft.

Reback's filing skewers the proposed settlement for failing to address Microsoft's product preannouncements, bundling practices, undocumented calls in Windows and the advantage Microsoft application developers get from early notice of Windows changes. All of those charges were previously brought to the Justice Department's attention.

Six months ago, the Justice Department predicted the settlement would "save consumers money [and] enable them to have a choice when selecting operating systems." Instead, Reback said, Microsoft has boosted the price of Windows, currently about $35 per PC, to as high as $70 per PC for Windows 95.

Like the white paper Reback previously submitted in the investigation of Microsoft's pending purchase of Intuit, Inc. in Menlo Park, Calif., the new filing asserts that Microsoft is bent on full domination of the PC software and on-line services markets by leveraging its market power in desktop operating systems.

"The white paper is sheer manipulation," a Microsoft spokeswoman said, citing the fact that Reback selectively released it to several news organizations.

Having recently read the 1992 book *Hard Drive: Bill Gates and the Making of the Microsoft Empire* by James Wallace and Jim Erickson, Sporkin said he wanted to know why the government dismissed many of the book's allegations, such as the notion that Microsoft announces vaporware products to freeze the market and hurt competitors.

Sporkin ordered a public hearing even though the Justice Department argued strenuously that a hearing was unnecessary. Anne K. Bingaman, head of the Antitrust Division, bristled at having Sporkin second-guess the investigation, the transcript of the meeting revealed.

"It's a good consent decree that ought to be entered," said Samuel R. Miller, the attorney who spearheaded the probe for the Justice Department. Miller, who has returned to private practice at the San Francisco firm Folger & Levin, said the decree "doesn't solve all the things people complain about," but it was the best agreement the department could get even if it had spent years in litigation.

Although Microsoft agreed to abide by terms of the proposed settlement immediately, the settlement is not legally enforceable until the judge finds it in the "public interest" and signs the decree.

Sporkin maintained that he is "absolutely neutral" on the case and expressed admiration for both the Justice Department and Microsoft's business success story. He called the company "a good example as to why our competitive system is the best in the world."

Senior editor Stuart J. Johnston contributed to this report.

PC pains get fixed

CONTINUED FROM PAGE 1

age's director of emerging technologies. As a result, he said, "it gives us a lot of leverage to negotiate service levels and costs."

Analysts said this breadth of services — as well as a willingness to cut fixed-price deals over multiple years — characterizes today's new and ever-growing breed of desktop service providers.

Indeed, customer service and support ranked as the top concern among IS managers in a recent poll conducted by Louis Harris and Associates. The poll, commissioned by PC maker Dell Computer Corp., revealed that business users want computer suppliers to take more responsibility before, during and after the sale of a computer.

Some 53% of the 250 managers polled said they believe the industry falls short in its knowledge of customer needs. As many as 66% indicated frustration with the industry's failure to stay in touch with the customer after the sale and 88% wanted suppliers to provide a single point of accountability.

One-stop shopping

Availability of such a wide array of services is also appealing to users, who historically have hired as many as a dozen different service contractors and often paid them on a time and materials basis. As companies look at upgrading desktops to accommodate Microsoft Corp.'s Windows 95, analysts said the prospect of a single vendor handling the installations is especially attractive.

"Windows 95 is going to kill 286 and 386 machines because it requires 12M bytes of memory to run Microsoft Office," noted Steve Clancy, director of systems services at Dataquest, Inc. in Framingham, Mass. "It's going to be a massive upgrade project for companies."

Many of the players in today's $6 billion PC services market are also new to the game. Joining more traditional providers such as Entex in Rye Brook, N.Y., are computer resellers, systems integrators and systems vendors, including Unisys Corp. in Blue Bell, Pa., Digital Equipment Corp. in Maynard, Mass., and Bell Atlantic Systems Services Corp. in Frazer, Pa.

As profit margins on sales of hardware continue to decline, service is the next logical business horizon for these vendors. Many of them are leveraging service infrastructures already in place for their own products.

Multiyear, fixed-price deals

What is equally logical is for user companies to tap these resources, said Jim Carter, director of utility management services at Georgia-Pacific.

Georgia-Pacific would have needed to hire "hundreds of people" to furnish desktop services to its 52,000 employees located at more than 500 sites nationwide, Carter said. Instead, it recently hammered out a multiyear contract with General Electric Technology Management Services in Norcross, Ga., to provide the paper company with a whole range of desktop services at a fixed price.

"Because it's a multiyear arrangement, we're able to predict our expenses with quite a bit of certainty," Carter noted. "We're also adding services we didn't previously have. Comparing what it would have cost us to staff up to provide them vs. what we are going to be paying [to GE] represents a savings of hundreds of thousands of dollars each year."

At Piper-Jaffrey, Entex built into its fixed-rate price "the cost of all services plus the cost of technology upgrades," Collins said. The arrangement should yield more predictable and lower costs than the brokerage's previous arrangements with multiple vendors.

"We used to take the hardware maintenance bill and split up the cost between all users. Whether they had an old PC or a new one, they paid the same just to make the arithmetic simple," Collins noted.

Helping hand

FASTEST-GROWING SEGMENTS OF DESKTOP SUPPORT AND SERVICES MARKET

SERVICE	1994 MARKET VALUE
ASSET MANAGEMENT	$31M
NETWORK MANAGEMENT FOR PC LANS	$147M
HELP DESK SUPPORT	$233M

Source: International Data Corp., Framingham, Mass.

Guessing game

But analysts and vendors warn that predicting savings can be dicey because most large companies do not have a clue about how many PCs they own, much less how much they actually spend on support.

"We have customers who are 50% off when they estimate their number of desktop devices," said Gerry Gagliardi, vice president of worldwide customer service at Unisys' desktop services group. "They don't know who has connections to what and what applications are on what servers. Over the last 10 years, they've run amok in letting people do whatever the hell they wanted."

"When there is a major release of software, very few companies have their arms around who is authorized to buy it," he added. "The next thing you know, they're on the hook for a gazillion licensed upgrades. One of the biggest fears today in companies is that when Windows 95 gets here, they won't be able to control the number of licenses."

SAP users hunting for R/3 expertise

By Rosemary Cafasso

Despite continued efforts by SAP America, Inc. and its consulting partners to pump trained personnel into the marketplace, users are still finding that demand for R/3 expertise is outpacing supply.

As a result, these client/server migration projects are giving some users more trouble than they bargained for. Outside consultants and internal staffers are hard to hire and even harder to retain.

"It's unfortunate, but there's a bidding war out there for people trained in R/3. They can just about write their own ticket," said Jack Spurgeon, vice president and director of the systems and computer services division at Eastman Chemical Co. in Kingsport, Tenn. "It is becoming a major cost factor. It could reach a point where companies may be reluctant to move in this direction because of the increasing costs."

SAP's 1995 game plan

SAP plans to fill the R/3 expertise gap with the following:

- **Outside consultants.** Another 2,800 trained by year's end.
- **Inside experts.** Two hundred additional hires in January, plus another 100 hired every 10 to 12 weeks in 1995.
- **Training centers.** Nine more added by March.
- **SAP services.** Reorganized with three new dedicated groups for customer support, product support and education.

R/3 is a suite of client/server applications developed by SAP AG in Walldorf, Germany. Together with its U.S. subsidiary, SAP America in Philadelphia, the company has shipped R/3 to more than 1,800 customers.

Keep them happy

Mike Capellas, director of information systems at Schlumberger Ltd. in Houston, is overseeing a worldwide implementation of R/3. He said it is common for project members to get two or three recruitment calls a week. But he said he considers himself lucky because he has lost only a few staffers.

"It is very important, particularly with the stress these projects bring, to have a career path for these people," Capellas added. "Most importantly, you need to recognize their efforts."

The downside is that heavy recruitment has bumped up salaries to levels that are hard to keep pace with, Capellas said. A typical salary for a person experienced in configuring an R/3 system runs from $90,000 to $100,000, he added.

SAP officials last week said they are aware of the expertise gap in the market and plan to announce additional steps this week to fix the problem (see box). Alex Ott, vice president of strategic relationships at SAP, said the company promises to have several thousand trained experts on the market by year's end.

The company is also getting more forceful in telling consulting firms to stop raiding the competition to build their own staffs, Ott said. It recently added a "no solicitation" clause to the contracts it signs with consulting firms.

In addition, both KPMG Peat Marwick and Andersen Consulting last week said they will expand their SAP services.

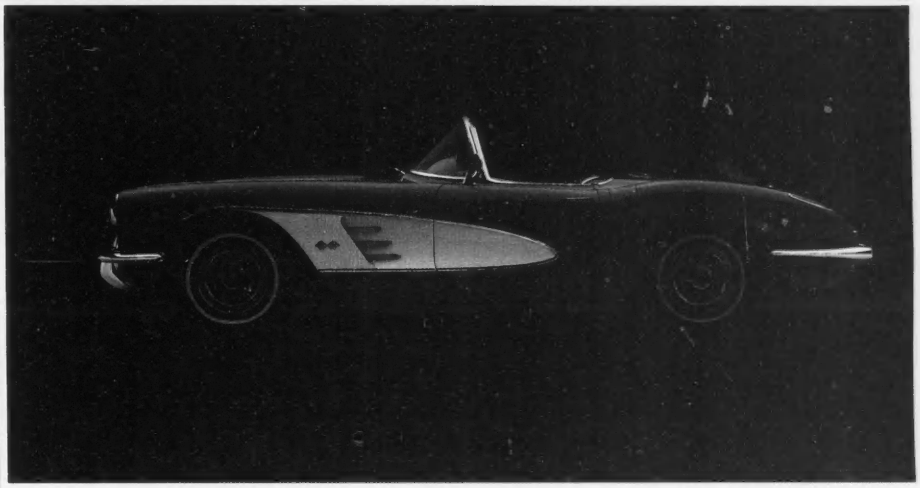
In the meantime, SAP customers said the search for consultants is still difficult.

"There is clearly a shortage of people who are experts in this product," said Tom Long, controller at Pacific Gas & Electric Co. (PG&E) in San Francisco. "We had to go far and wide to find them."

Long said PG&E was successful searching for consultants in Europe and has assembled a team that includes people from SAP and several consultancies.

At Suburban Propane Co. in Whippany, N.J., IS director Steve Wells has filled some vacated full-time slots with contractors from Australia and England.

In addition, he has set up a special bonus program to entice R/3 staffers to stay at the company. The bonus is paid two months after a particular piece of software a staffer has been working on is moved into production.



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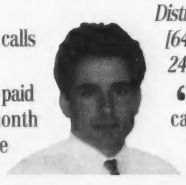

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Borland's musical chairs

CONTINUED FROM PAGE 1

product line and eliminate nearly one-third of the company payroll, or 500 employees.

Industry sources said at least three companies — including Novell, Inc. — have been approached to purchase the database product lines. However, a Novell source said the company is not currently interested in buying the product lines.

Wetsel strongly denied the products would be sold as part of the plan. He contended that the company would continue to develop and sell its dBase and Paradox product lines.

"Our strategy is to focus on the developer marketplace," Wetsel said. "Quite clearly, dBase and Paradox fit into that strategy."

What Borland will try to off-load to a buyer are products such as Sidekick, a personal information manager, and Dashboard, which it recently bought from Hewlett-Packard Co.

Analysts were disappointed with Borland's maneuvers. While calling Wetsel a competent financial officer, they noted that he is untested as a software industry company president. Analysts briefed on the restructuring plan said it falls short of what Borland must do to become profitable.

Ouch!

On Jan. 26, Borland is expected to announce a $20 million loss for its third quarter, ended Dec. 30, 1994.

"Without selling dBase or Paradox, we're looking at cutting right into the bone," said Michael Wallace, an analyst at UBS Securities, a New York investment concern. He said consolidating international distribution efforts was the only other cut he knew of that Borland would announce in its restructuring plan.

Won't let go

Moreover, analysts said they did not think that Kahn — who is widely believed to be responsible for Borland's current woes — would relinquish control of the company to Wetsel. Many are unhappy with Borland and expressed dismay over Maib's departure.

"By all appearances, this is still a Philippe Kahn board," Wallace said.

In a memo to employees, Kahn said he "will continue to work with Gary and the rest of the management team on long-term planning, international issues and other special projects."

"Philippe has more control than he needs," said Mary McCaffrey, an analyst at Alex. Brown & Sons, Inc., a New York investment firm. McCaffrey, who said she has known Wetsel for several years, called him a "capable, free-thinking guy capable of quick action." Before joining Borland, Wetsel was vice president and CFO at Octel Communications Corp. in Milpitas, Calif.

"But Gary's a CFO; he's never been at a software company," McCaffrey said. "In some respects, this could give Philippe even more control."

Chain of command

In fact, Wetsel was hard-pressed to explain the differences between his new relationship with Kahn compared with former COO Maib's. "I report to the board of directors, not to Philippe Kahn," Wetsel said. "Keith reported to Philippe Kahn."

Even so, Kahn and Wetsel represent one-third of Borland's board, of which Kahn remains chairman. The same board will be responsible for determining whether Kahn will continue to receive the salary he received as chief executive officer and president. A Borland spokesman said this issue has not yet been decided.

"The bottom line is that Philippe is there, and the downsizer [Maib] is gone," said Jeffrey Tarter, editor of "Soft Letter," an industry newsletter in Watertown, Mass. "Why is this any different from the last few times they said Philippe is stepping down?"

Object-oriented development

CAD/CAM platform saves time

By Neal Weinberg

Computervision Corp. last week introduced an object-oriented development platform for the technical design market that will serve as a foundation for its products during the next decade.

The Bedford, Mass., company, which had flat revenue in 1994, is looking at the new platform, named Pelorus, to cut its product development costs. The vendor also hopes the product line will help it move into new markets, especially in the low end of the computer-aided design and manufacturing (CAD/CAM) spectrum.

"They are showing good strategic thinking," said Kathryn Hale, an analyst at Dataquest, Inc. in San Jose, Calif. She added that the company was adopting "a termite approach starting from the bottom up, appealing to the simplest functionality at the lowest price point."

Pelorus will allow CAD/CAM software developers to write desktop applications in one-fifth the time, Computervision executives said.

Framatome S.A., a $3.2 billion French company that builds nuclear reactors, has been using Pelorus since last summer. Jean-Francois Cochet, who is coordinating the Framatome/Computervision partnership, said Pelorus has sped up Framatome's work because "80% of the software development is already inside the tools." Object-oriented technology requires fewer lines of code to write and allows easier checking and verifying, Cochet added.

Computervision's CEO Russell Planitzer: *Revenue from Pelorus will not show up until 1996*

Three years in the making

Computervision's new object-oriented development platform Pelorus was created by 70 San Diego-based Computervision employees during the past three years.

Luring vendors

But Computervision has its work cut out for it, analysts said. One challenge includes enticing software vendors to write applications for a technology that has no installed base, Hale said.

Another challenge is to keep its installed base of Computer-Aided Design and Drafting System customers on board while the technology shifts to Pelorus, Hale added. Chief Executive Officer Russell Planitzer said Computervision expects its revenue in the year 2000 to be evenly split between the two platforms. In fact, Planitzer added, Pelorus revenue will not even begin to show up until 1996.

Bruce Jenkins, vice president at Daratech, Inc. in Cambridge, Mass., said Matra Datavision, Inc. in Tewksbury, Mass., and Cadkey, Inc. in Windsor, Conn., have released similar software development products.

Banyan opens up StreetTalk

CONTINUED FROM PAGE 1

an API specification. "Banyan will provide [independent software vendors] with all the components of our StreetTalk directory services — including the directory database and the client and server access mechanisms," Paul said. Independent software vendors "can take the StreetTalk code and use it to build a unified set of directory services directly into their applications. And they don't have to have any Vines networks in place," he said.

Big payoff

If independent software vendors use the DAPI rather than build their own, Banyan would then be in a position to reap big profits by writing back-end enabling products such as security, printing and directory synchronization applications, noted Tim Sloane, director of messaging applications and services at Aberdeen Group in Boston.

These applications would synchronize various network operating system and operating system platforms and databases enterprisewide. That is because the DAPI tool kit will support other messaging environments, including Microsoft Corp.'s Mail, Lotus Development Corp.'s CC:Mail and Notes products as well as Novell, Inc.'s NetWare Directory Services, Sloane added.

Early response has been enthusiastic. Users, analysts and independent software vendors said the availability of the StreetTalk DAPI tool kit could potentially help standardize directory services, cut development costs and time-to-market cycles and result in a flood of new applications.

"The concept is terrific," said Eric Hahn, president and chief executive officer of Collabra Software, Inc. in Mountain View, Calif.

Hahn said there is a pressing need for a unified directory services transport because for so long the industry has wrestled with many different APIs and conflicting standards. "If Banyan can deliver, the StreetTalk DAPI could unify directory services in the same way that Microsoft's Messaging API is helping to standardize transport services," Hahn said.

Mike Zisman, vice president of Lotus' Communications Business Group in Cambridge, Mass., said based on preliminary discussions with Banyan, the StreetTalk DAPI is "definitely worth a look-see."

"We still have a great deal more to learn about it, and we are fairly committed to X.500, but that doesn't preclude us from considering or using the StreetTalk DAPI," Zisman said.

StreetTalk does not yet support an API to X.500-based directories, but the company is working on it and should have it "within the year," Paul said.

More is better

This prospect pleases longtime Banyan users such as Barry Reesor, a systems analyst and network administrator at Falconbridge Ltd. in Toronto who said he must defend his use of Vines to his own users. The users complain that add-on applications are not as readily available as they are for Novell's NetWare environment because there are far fewer Banyan independent software vendors.

"I think it's great because I currently have to make a lot more phone calls to find a Vines application compared with making a single phone call to get a NetWare application. The more [independent software vendors] that write applications, the better it is for my 1,000 end users," Reesor said.

Sloane agreed, saying the potential benefits for users, Banyan and the industry at large are enormous if Banyan can pull it off.

"Take something that's free and wave it in front of anybody and the overwhelming reaction will be to investigate the offering," Sloane said.

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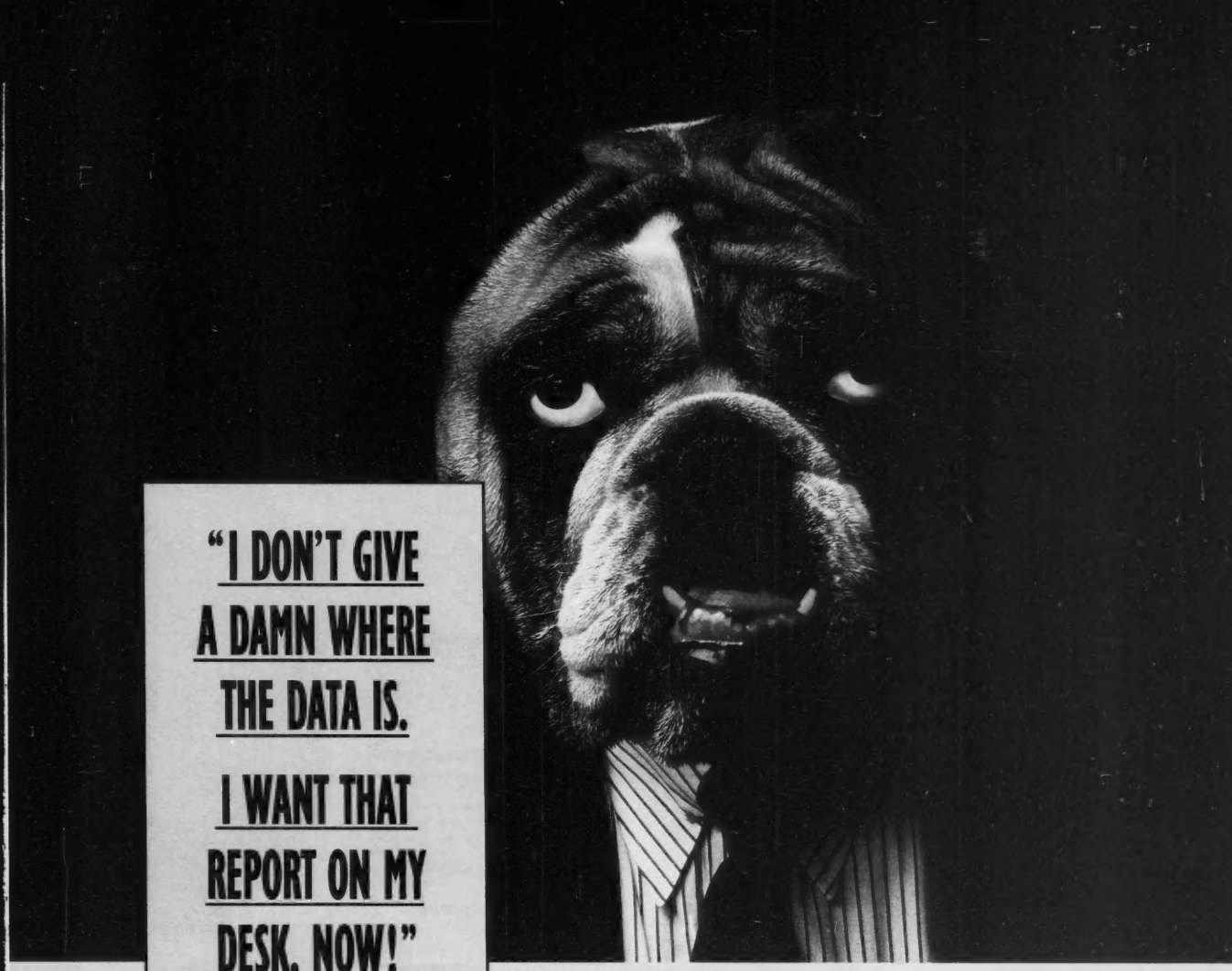

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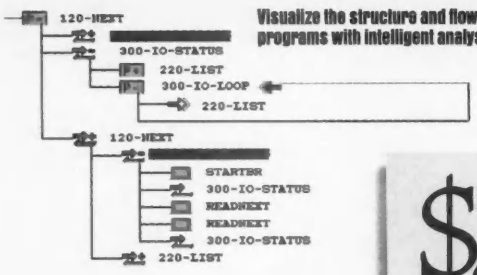

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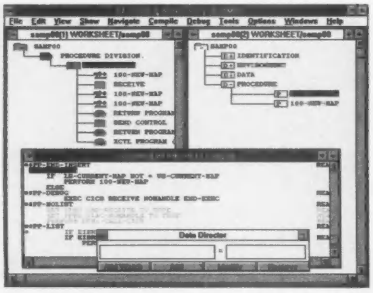

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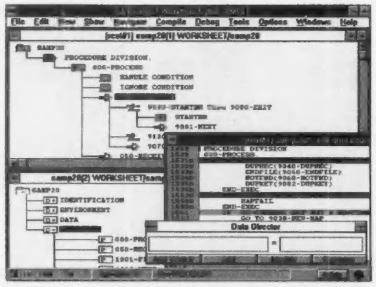

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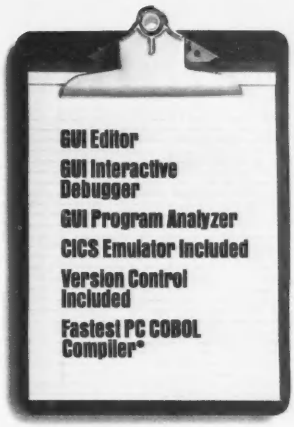

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The politicizing of cyberspace

As the Internet community prepares to deal with obscenity, copyrights and more, partisan groups splinter apart

By Mitch Betts
WASHINGTON

The new year's list of unresolved legal issues in cyberspace is a long one — ranging from whether to outlaw obscene material on computer networks to how to enforce copyrights on that massive copying machine known as the Internet.

The list of interest groups vying to shape those cyberspace policies is growing, too. Newcomers include the conservative Progress & Freedom Foundation, a think tank allied with House Speaker Newt Gingrich (R-Ga.), and the Center for Democracy and Technology, a policy group that broke off last month from the Electronic Frontier Foundation (EFF).

"Lawmakers want the perspective of public interest groups that have the technical and legal skills to focus on the new digital media," said Jerry Berman, executive director of the Center for Democracy and Technology. "You can't apply the old media rules to something like the Internet."

KATHERINE LAMBERT

Jerry Berman, *ex-EFF policy chief, has started the Center for Democracy and Technology*

The recent proliferation and splintering of interest groups is sending the signal that cyberspace policy is becoming a mainstream issue. Lance J. Hoffman, a computer policy expert at George Washington University, said the split between the EFF and Berman is reminiscent of the schisms that developed in the environmental movement in the late 1960s.

Set agendas

The differences are also reflected in the 1995 agendas of each group. For example, Andrew E. Taubman, the EFF's executive director, said his project list for the year includes the following elements:

- Producing a "State of the Net" report to educate policymakers about the technical, cultural and legal state of cyberspace.
- Experimenting with different methods for dealing with copyright problems in computer networks.
- Creating a Cyberspace Law Institute to study such legal issues as whether network administrators and bulletin board operators should be liable for the content posted on their networks [CW, Dec. 9, 1994].

Berman's Center for Democracy and Technology, on the other hand, will focus on enforcing the privacy protections in the digital wiretap law and encryption policy and opposing efforts to regulate the content of on-line networks.

"To an outsider taking a snapshot, it may look like [the] EFF is going through an identity crisis," Taubman said. "But [the] EFF's mission of nurturing a robust and healthy 'net and protecting the rights of citizens in cyberspace has not changed."

Berman had been the EFF's director of policy for three years but departed with his four-person policy staff because of a philosophical dispute that may seem subtle to outsiders but raises strong feelings among insiders [CW, Jan. 2].

Interviews with both sides indicated that the key point of contention was the EFF's plan to move beyond Washington deal-making — which has been controversial even among EFF members — to become more of a big-picture think tank. For example, EFF leaders want to explore such visionary questions as whether cyberspace is an "ecology" that needs a new form of governance.

Berman, however, wants to stay heavily engaged in the nitty-gritty of Washington lobbying. "The EFF board wants to separate from that function [Washington lobbying], which is messy and not fun," one source explained. "They want to join the debate but not do the actual plumbing. So the policy staff left."

EFF officials denied they are backing away from Washington affairs and said they will continue to lobby on such topics as encryption and privacy. But "we are broadening and deepening the mission . . . beyond the crisis-of-the-moment in the federal legislature," said David R. Johnson, an attorney who has emerged as a major figure in the new EFF.

Johnson replaced EFF co-founder Mitchell Kapor as chairman of the board of directors (although Kapor will continue to be an active board member) and will also become "senior policy fellow," essentially replacing Berman.

This is one of a series of reorganizations at the EFF, which began in July 1990 as a ragtag effort to protect computer networks from overzealous prosecutors. The founders included Kapor, founder of Lotus Development Corp., and John Perry Barlow, a Wyoming rancher and lyricist for The Grateful Dead.

More than a geographic move

For the group's 2,000 activist members — who have a strong antigovernment streak — the most traumatic change was the 1993 headquarters move from laid-back Cambridge, Mass., to pin-striped Washington.

At one point in 1994, rank-and-file members were angrily posting "EFF sellout" notes on the Internet. The reason was the EFF's decision to negotiate with sponsors of the fast-moving digital wiretapping bill — an anathema to many privacy advocates — rather than oppose the bill.

The legislation, which was strongly backed by the Federal Bureau of Investigation and quickly passed, requires telephone companies to re-engineer their digital networks to enable court-ordered wiretaps. The EFF agreed not to oppose the bill after cutting a deal to include some privacy protections and exclude the Internet and on-line networks.

But the Washington maneuvers did not sit well with some EFF members. "I've written them off," said Timothy C. May, co-founder of the Internet's Cypherpunks discussion group on encryption. "They don't represent my interests. They're not a member-driven, grassroots organization."

Out on the Electronic Frontier

- **July 1990:** The EFF forms in Cambridge, Mass., to protect the civil liberties of the networked community.
- **January 1992:** The EFF opens a Washington office headed by Jerry Berman.
- **January 1993:** Tensions between the Washington staff and the Cambridge headquarters lead the EFF board to move the organization to the nation's capital, with Berman at the helm as executive director.
- **September 1994:** The EFF brings in Andrew E. Taubman, a professional manager of nonprofit organizations, to take over as executive director and handle administrative duties. Berman stays on as director of policy.
- **December 1994:** Berman and policy staff leave the EFF to form the Center for Democracy and Technology.

Hopping down the money trail

One challenge facing the EFF this year is a pressing need for cash.

The Washington-based organization must replace the corporate funds that former policy chief Jerry Berman brought to the organization and is now largely taking with him to his newly created Center for Democracy and Technology.

Berman said his center has already lined up funding from various foundations and vendors, including AT&T Corp., Microsoft Corp., Lotus and the Electronic Messaging Association.

Actually, the fact that the EFF takes industry money at all is controversial. Public interest groups should not accept corporate donations because it is a conflict of interest, said Marc Rotenberg, director of the Electronic Privacy Information Center in Washington, which does not take corporate donations.

Berman said such concerns reflect an unfounded "hostility to the private sector." The way to ensure integrity, he added, is for the public interest group — not the donors — to define its agenda and then accept funding from organizations that support those goals.

But some Internet users said they felt "betrayed" to learn that what they thought was a populist organization was at the corporate trough. "If you take corporate money, especially from telecommunications and information technology companies, you should let people know," said on-line activist Kathryn A. Kleiman. "Intelligent people want to know where [the] EFF's influences come from."

Andrew E. Taubman, executive director of the EFF, stressed that more than half of the EFF's $1.7 million budget comes from individual members and foundations, not corporate sources. The EFF's top corporate backers in 1993 included AT&T, Microsoft, Sun Microsystems, Inc., Apple Computer, Inc. and IBM.

— Mitch Betts

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OpenVision fans keep faith despite delays

By Steve Moore

Privately held OpenVision Technologies, Inc. burst onto the scene in 1992 with ambitious plans to acquire nearly two dozen separate Unix systems management products and knit them into a seamless client/server management environment.

Today, OpenVision is blessed with a small cadre of loyal users but is beset by slipping product delivery dates and pressure from users — as well as from venture capital investors that have pumped $62 million into the company — to deliver the rest of the goods on time.

"They need to get their internal product plumbing straightened out," said an information systems manager at a major West Coast company that uses OpenVision's performance management, job scheduling and backup applications.

While OpenVision promised that by now its various applications would share a common graphical user interface, object interface layer and data model, "those things have not been done in the time frames provided to us, and there are still no definite delivery dates," added the IS manager, who requested anonymity. Nevertheless, "I think they will be able to right their ship if they focus their resources and meet their commitments consistently," he said.

OpenVision Chief Executive Officer Michael Fields acknowledged that "delivery dates on a number of integration pieces are behind schedule, and it will be 12 to 18 months before we get the full capabilities we would like." Much of that delay is due to the slower-than-expected emergence of industry standards for distributed, object-oriented computing, he said.

Still, some industry analysts remain skeptical about OpenVision's future.

"OpenVision now has no pretense that they will launch a super framework within which all objects are seamlessly integrated," said Paul Mason, a research manager for enterprise systems management at International Data Corp. in Framingham, Mass. He said the vendor now offers consulting services to help companies select and integrate OpenVision products on a customized basis.

OpenVision CEO Michael Fields: *Slow emergence of standards contributed to product delays*

"I don't see where their advantage lies relative to the competition," added James Herman, a vice president at Northeast Consulting Resources, Inc. in Boston. "Tivoli clearly has better technology, and Legent and Computer Associates have greater resources and larger customer bases."

Rare finds

For one user, OpenVision's advantage lies in products such as OpenV-Event Manager and OpenV-High Availability, which "are examples of products that are difficult to find anywhere," even among OpenVision's competitors, said Jim Swanson, vice president of database operations at CS First Boston Corp. in New York. Swanson said he is evaluating those two products and is pleased with OpenV-Perform, the performance management product he currently uses.

OpenVision also has some advantage in heterogeneous client/server environments because it has ported its products to a variety of key operating systems and databases, noted a former OpenVision executive, who asked not to be named. "They need a set of enabling services to make their applications work together, but it's not necessary for them to have an all-encompassing framework like Tivoli's," the executive said.

Because both companies' products are able to monitor processes and automatically take corrective action if there is a problem, OpenVision's event manager will monitor Tivoli's Sentry and restart it if it goes down or vice versa, said Dave Hartz, manager of distributed computing infrastructure at GTE Data Services, Inc. in Tampa, Fla.

Hartz said using both products enables GTE to keep its systems management options open. "We're dealing with two companies that are new and relatively small, so we don't want to bet the whole farm on either one," he said.

While OpenVision continues its product integration efforts, it is also consolidating the staffs and facilities of the companies it has acquired. "Once they get over the resizing, the intention is to make an initial public offering 12 months after that," the former OpenVision executive said.

"Maybe they don't have to prove profitability right now, but they have to set themselves to be profitable so they can go public," said Judith Hurwitz, president of Hurwitz Consulting Group, Inc. in Watertown, Mass.

Senior editor Jean S. Bozman contributed to this story.

Vines, ENS releases lead Banyan transition strategy

By Laura DiDio
WESTBORO, MASS.

This is supposed to be the year that Banyan Systems, Inc. reinvents itself as an enterprise network services provider. Or so promised President and Chief Executive Officer Dave Mahoney in an interview last week.

The revamp is part of a Banyan bid to shed its reputation as a general-purpose network operating system vendor relegated to runner-up status behind Novell, Inc. and Microsoft Corp.

But possibly most astounding to longtime Banyan watchers is Mahoney's vow that, in the first half of the year, marketing — long the company's Achilles' heel — will become an asset and not a liability.

Mahoney is betting that born-again marketing, coupled with a burgeoning international sales presence, will produce new Vines and Enterprise Network Services (ENS) account wins among Fortune 1,000 companies. Banyan already commands a 50% share of the enterprise networking market — 5,000 Vines accounts with 4 million users worldwide.

The first step in achieving this goal is the release of a new version of Vines' StreetTalk directory services in Vines 6.0, which is due in April. It will incorporate a directory synchronization for other major platforms, said John Paul, Banyan's senior vice president of business development.

Other steps include the following:

- Continued fortification of Banyan's Intelligent Messaging III back-end messaging package via integration with the BeyondMail 2.0 front-end messaging platform.
- Fleshing out the struggling ENS product line in the next few months. ENS is a set of unbundled services from the core Vines network operating system designed to run on other platforms. ENS for Solaris will ship in April, along with the second generation of ENS for NetWare.
- Continued decreasing dependency on Vines for revenue. The system now accounts for 35% of the company's sales, down from 80% five years ago, Mahoney said.
- Opening of new sales offices in Europe and the Pacific Rim.

Vying for more visibility

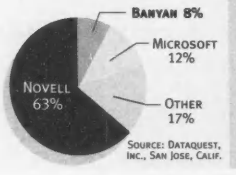
Tim Sloane, director of messaging applications and services at the Aberdeen Group in Boston, said the new marketing initiatives are a clear departure from Banyan's earlier proprietary stance. As such, they will offer the company a real shot at becoming a mainstream supplier of enterprise network offerings.

"Until now, Banyan was totally unwilling to open up the Vines platform; now they're becoming more open. This will let them maximize their technology jewels, like StreetTalk. The new sales offices show they're becoming more market-driven," Sloane said.

"It's a very crucial time for Banyan," said Lee Doyle, an analyst at International Data Corp. in Framingham, Mass. "ENS still has not taken off; it's a tough sell outside the installed base because Banyan has not been perceived as the top [network operating system] vendor with the 69% market share Novell has. So it's essential that Vines and StreetTalk continue to sell well and that Banyan executes this enterprise strategy in order to raise its visibility and make themselves more viable to corporate customers."

The moves are resulting in tangible dividends. Banyan has scored more than a dozen major account wins among domestic and international businesses in the past two quarters (see chart). At the same time, a number of longtime customers have recently expanded the scope of their Vines networks.

While Banyan's overall network operating system market share is less than 10%...



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...Vines has captured nearly 50% of large enterprise sites...

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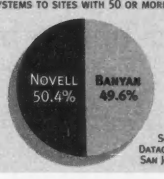

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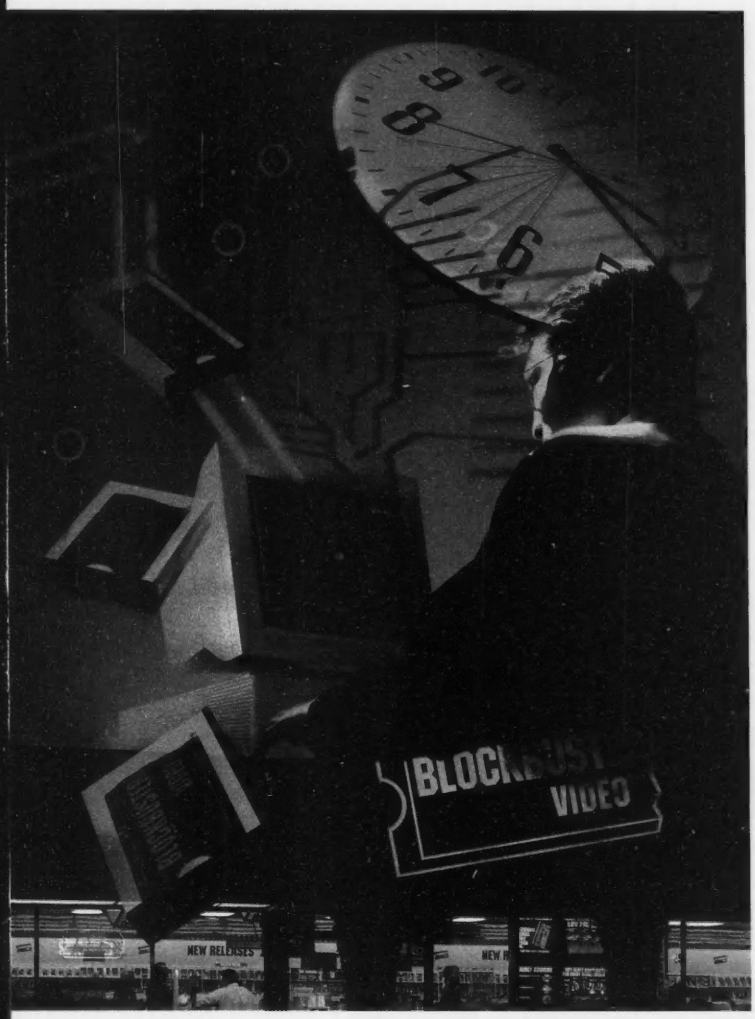

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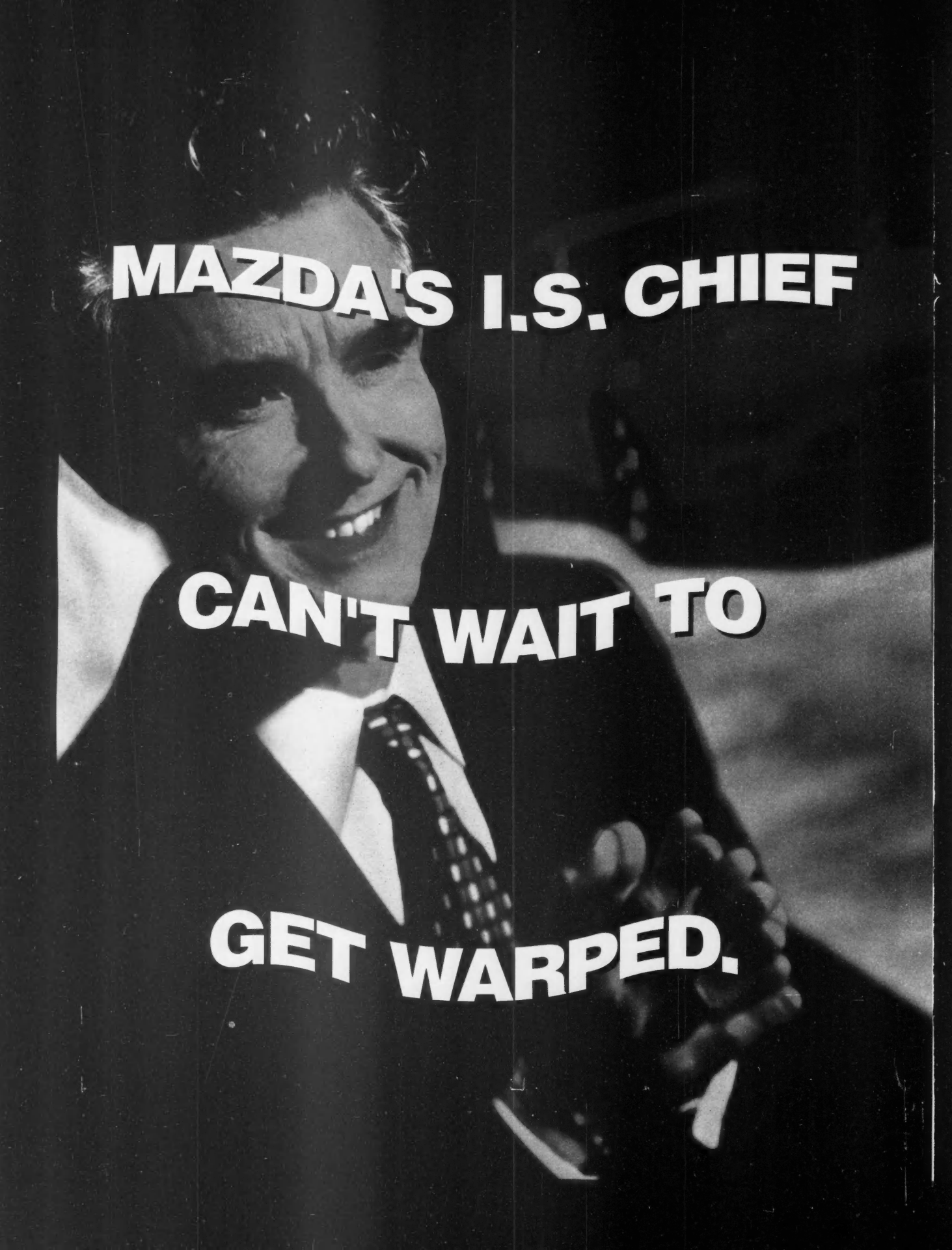
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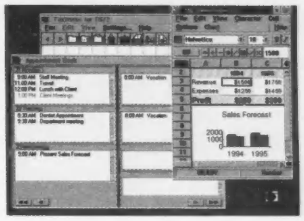

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Developers blast Next decision

By Kim S. Nash

■ If angry third-party developers continue to turn up the heat on Next Computer, Inc., Chief Executive Officer Steve Jobs may soon need an asbestos turtleneck.

The marketing prowess of Jobs is under fire from developers and users upset about Next's decision earlier this month to cancel its annual NextStep Expo conference. Compounding matters are the four executives and three marketing staffers who have left Next in the past three to four months, having quit or been reorganized out of jobs.

"Perhaps it's time that we all ask Next for a marketing plan before we agree to spend one more dime on developing NextStep applications," said Steve Sarich, president of Talus Imaging and Communications Corp., a third-party developer in Houston.

Showcase gone

The cancellation of Expo/95, which was scheduled for June in San Francisco, "is an omen and not a good one," predicted Judith Hurwitz, president of Hurwitz Consulting Group, Inc. in Watertown, Mass.

Because a good chunk of attendees have traditionally been corporate programmers and information systems staff, the show was the favored means for developers to showcase their products and drum up business. Now, that marketing avenue, at least on that scale, is gone.

Redwood City, Calif.-based Next plans to replace Expo/95 with a series of smaller meetings piggybacked onto existing regional shows. This will let Next "educate more people face-to-face on how to use NextStep and OpenStep," said Marty Yam, vice president of worldwide sales and marketing at Next.

Multiple-area meetings will be too expensive for small developers and those overseas to attend, noted Wes Spears, a NextStep consultant at The Weston Group in Houston.

Further, Next could lose the attention of the very market it reorganized itself around last November: decision-makers in corporate IS. "At a developer's conference, where do the CEO, CFO and CIO people fit in?" Spears asked.

Without a Next-specific magazine or an annual show, NextStep fans will have difficulty building a sense of community, which is important to small start-up developers, said Steve Weintz, a programmer at EthnoGraphics, a NextStep developer in Champaign, Ill.

"But so much of my learning about Next products is done over the Internet that it's almost like the community has moved to cyberspace already," Weintz added, referring to the many electronic newsgroups and on-line catalogs surrounding Next products. Next even posts help wanted advertisements on-line.

Still, given the aggressive methods Microsoft Corp. uses to recruit independent software vendors, Next and would-be rival Taligent, Inc. must do the same, Hurwitz said.

Lashing out at Next

The cancellation of this year's NextStep Expo elicited stinging comments from some fans, including:

"Next is beginning to kill the software that's there to help them beyond what IS people build themselves with NextStep." — **Wes Spears, a consultant at The Weston Group in Houston**

"Perhaps Next couldn't find enough vendors to fill" the large Moscone Center conference hall in San Francisco where the show has been held. "There aren't many ISVs left." — **Ernie Prabhakar, president of NextStep/OpenStep User Group International**

"At least Microsoft seems capable of having an Expo!" — **Richard West, NextStep developer in Australia**

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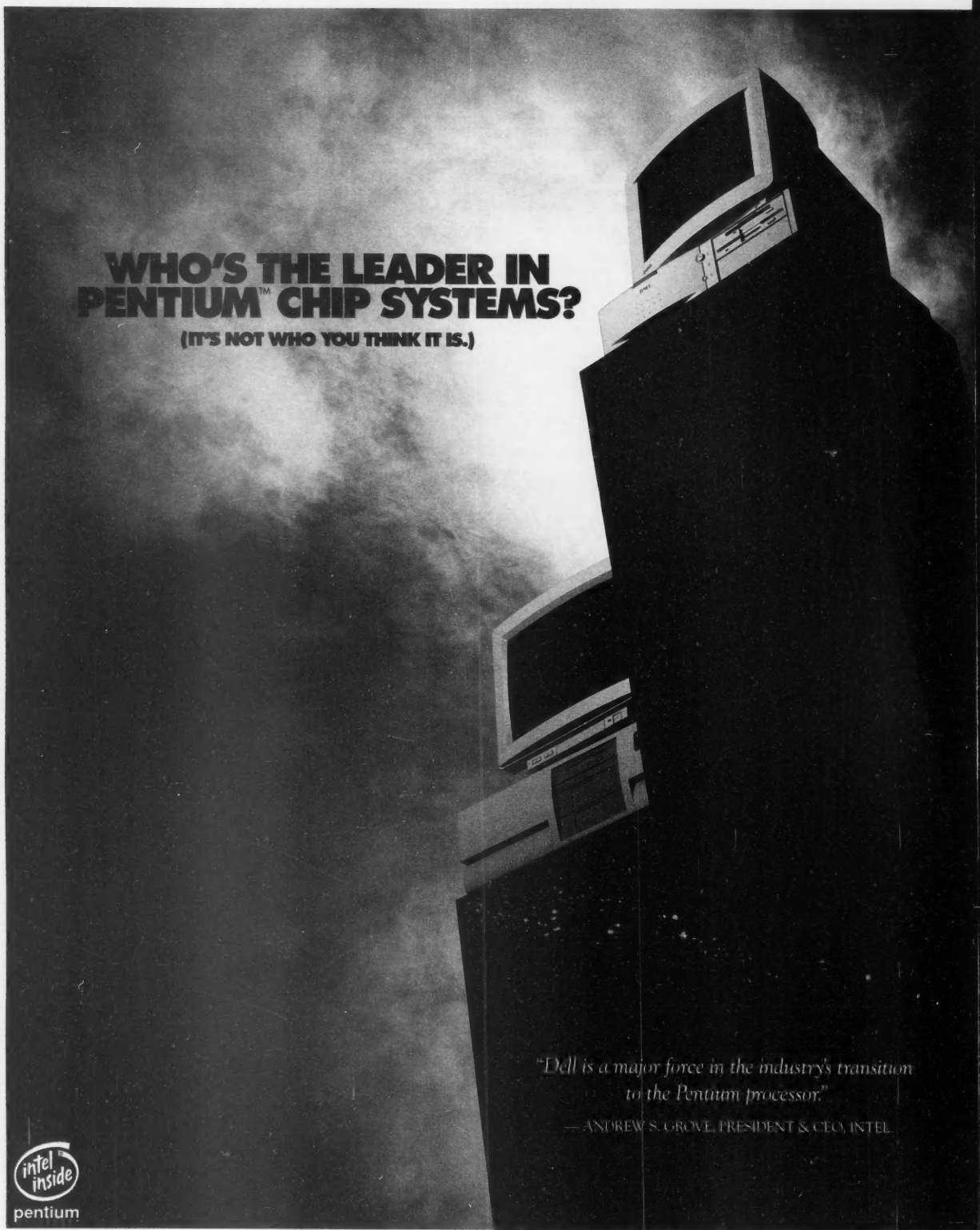

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Users take Attachmate, DCA merger in stride

By Suruchi Mohan

■ Host-to-PC connectivity providers Attachmate Corp. and Digital Communications Associates, Inc. (DCA) last week officially completed their merger.

Nearly two months after the merger was first announced, it does not seem to have ruffled users' feathers much.

David Morales, a data systems analyst at Beverly Hills Municipal Court in California, said he is somewhat concerned about service, however. "We went with Attachmate because of their service; there are lots of field engineers here in Los Angeles," he said.

Morales said he harbors no fear that the new company might drop his product line. He also said he would go ahead with his planned purchase of products.

John Shagoury, vice president of supplier relations at Corporate Software Inc., a reseller in Norwood, Mass., said support is not an issue among users. He said companies historically drop product lines only if they can offer a superior product instead. Even then, vendors are sensitive about providing support for the old products. "These mergers are so common; users are not as worried," he explained.

Product futures unknown

How the two companies will merge their product lines is still being worked out, according to Tom Van Horn, a vice president at DCA in Alpharetta, Ga. For example, each company had begun to develop connectivity products that would work under Microsoft Corp.'s Windows 95, the next version of Windows. Now those efforts have been pooled.

Existing products are being put under the control of product vice presidents, who will lead a transition team to determine how the merger will affect the companies' products.

Continued support

Users of Attachmate's flagship product, Extra, and DCA's Irma will continue to receive full support from the new company.

For example, Attachmate's Kea asynchronous product and DCA's CrossTalk will be in one group. The same will hold true for the companies' product lines for the AS/400, OS/2 and Macintosh operating systems. The Irma and Extra product lines from DCA and Attachmate, respectively, will continue to be developed.

Although representatives from both companies are careful to call the joining of forces a merger, analysts said they believe the deal is actually an acquisition by Bellevue, Wash.-based Attachmate. The company is retaining its name, and Attachmate founder Frank Pritt will be chairman and chief executive officer of the new company.

Behind the scenes

"It seems to be an acquisition, but it's best positioned as a merger because they are too equal in size in terms of market share and revenue," said Elisabeth Rainge, an analyst at International Data Corp. in Framingham, Mass. DCA's perceived subordinate position to Attachmate was surprising because of DCA's wider name recognition, according to analysts.

DCA had been a public company until the investment consortium of Welsh, Carson, Anderson & Stowe in New York acquired it in September 1993.

Before the merger was announced, Attachmate had been on a buying binge. In December, the company bought Key Systems in British Columbia, a PC-to-Vax and TCP/IP connectivity company, for $20 million. Last June, it acquired the French company Datasix for $1.2 million.

However, one weakness in this buying frenzy is that Attachmate must now integrate all its acquisitions, Rainge said. "They need to take time to digest," she said.

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Breaking points

How far will IBM Chairman Lou Gerstner go to show his customers and stockholders that he is committed to growth and stability? Specifically, would he pull the plug on OS/2?

For many, particularly those in IS who have bet big on OS/2, that is the only question in the wake of last week's corporate realignment at the world's biggest software company (see story page 1).

Gerstner has consistently pronounced OS/2 a linchpin in IBM's long-term software strategy. Yet he has consistently delivered another perhaps overriding message — that IBM will no longer pour money into projects and products that don't produce profit.

IBM claims it has sold 6 million copies of OS/2 — about one for every 10 copies of Windows out there — but hasn't earned any profit from the operating system. Nearly a million copies of OS/2 were sold late last year during an intense OS/2 advertising blitz.

If you want a true 32-bit, multithreaded, multitasking operating system for your desktop units and don't want to bother with Unix, then the latest iteration of OS/2, OS/2 Warp, is the only show in town.

That may not be the case for long if Microsoft can get its act together with Windows 95, and let's assume for discussion's sake that it does. If users have a choice, they will support fewer environments rather than more. The overwhelming majority in the corporate world will support the familiar Windows world, and there will go the business case for continued IBM support for OS/2 — the company won't make money selling it.

Absent a business case for OS/2, how about making a case for it as a strategic product for IBM? For example, can it be looked at as the fuel behind sales of hardware based on the PowerPC?

The road to the PC graveyard is littered with wreckage from companies such as Wang, Digital and others that tried to circumvent the user-established MS-DOS standard. With the word processing dominance Wang once enjoyed, it could easily have been a major or even dominant force in PC hardware had it jumped on the DOS bandwagon with its early PC models. It chose instead to fight the standard, and the rest is history.

IBM will very likely stay the OS/2 course for the time being, pending the first commercial release of Windows 95. Major problems with that Microsoft release would give OS/2 a big boost.

Then there are those who would say that IBM should stay in the desktop operating system business regardless of the degree of success of Windows 95. Only IBM, they argue, can keep Microsoft honest.

But given a user community whose biggest technology headache is supporting the heterogeneous client/server environment, one has to ask if more alternatives are better than fewer in the case of PC operating environments. No doubt Lou Gerstner will be mulling these same points in the months ahead.

Bill Laberis

Bill Laberis, *Editor in Chief*
Internet: *blaberis@cw.com*

Alive and thriving

I couldn't agree more with Matt Ghourdjian ["The Mac is dead for business," CW, Dec. 12, 1994]. Macintoshes are easier to administer, teach users on, support and troubleshoot than PCs. Furthermore, they hold their resale value better.

It seems the PC world will ultimately be split between those of us who use PowerPC machines and those of us who don't mind if our division is inaccurate. If the market of PowerPC vendors, models and operating systems becomes larger and more competitive, it will bring about more applications and more choices. If you still really want to run Windows despite its kludginess, you can.

Is that a Windows machine crashing, Mr. Doehler? You'd better get back to work.

L. S. Roseman
Chicago

I disagree with Dan Doehler's assessment of the Macintosh. Doehler claims the Macintosh has an aging operating system and fewer applications than PCs. The current Mac OS version is only a few months old, whereas MS-DOS is the most inept and archaic operating system sold today.

Doehler claims that PCs have much more software available. The total uselessness of DOS has given birth to thousands of DOS enhancement programs and memory management utilities. The Macintosh doesn't need all those extra programs to work right. And the most common business applications are also available on the Macintosh.

Scott E. King
Washington

Policies can be worlds apart

"Global management tackled" [CW, Nov. 28, 1994] reveals a rather parochial attitude among some U.S. organizations toward business overseas.

Perhaps in Europe it might be possible and feasible to set up a centralized management unit for the whole continent. But in South Africa, for example, suppliers who elsewhere might be considered major vendors have only a very small market share because they either disinvested or never invested in this country. The reverse applies to companies that stayed.

At another level, business policies that might be acceptable in the U.S. — such as mass retrenchments — might be unacceptable here. For a U.S. manager to assume that vendors, prices and policies are common throughout the world shows a poor knowledge and understanding of the world.

Simon Griffiths
Johannesburg, South Africa

Do unto others . . .

Because we are human, our emotions play a leading role at times, and being offended is gut reaction. There are prime examples in your column ["Flame mail burns users," CW, Dec. 5, 1994].

You refer to flamers as "infantile." Oops — did you just join the group?

You also say, "Flame mail writers are like school yard bullies who use their fists because they lack grace and tolerance. Settlers of the electronic frontier should treat them like the thugs they are." I don't think the analogy is accurate. We're not in the Wild West of the 1800s, and I hope we have become educated enough to understand that we all need one another's help, not just the newcomers.

Rick LeMarr
Memphis

I do empathize with AOLers; there are "I Hate AOLers" postings in my favorite newsgroups. What these people seem to have forgotten is that they were once new to cyberspace, too, and that AOLers need guidance, not hate mail. If I can help anyone with a question, regardless of who or what service they use, I do. The Internet is for us all, and we should treat one another with respect and courtesy.

Charles C. Brewster
Santa Barbara, Calif.

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Return on investment – the hard way

Marc Dodge

It was nail-biting time. Actually, it was cuticle-biting time — my nails were long gone. I sat with a gaggle of department managers deep within the concrete bowels of corporate headquarters. Our goal: to get approval for IS projects from the funding gods.

I was lucky. I watched the CEO and department heads masticate a mine canary. The first manager explained that for $6 million he would improve service and make people more productive. The CEO moved in for the quick kill: "Will your operation be $6 million more productive? What return will the improved service generate?" The cannon fodder replied, "I dunno." The big guys dismissed him. The meeting was off to a quick start.

Foolish me. His performance soothed me. Smugly, I thought about my project's super return on investment (ROI). Hell, I had a graduate degree in finance from a major metropolitan diploma mill. I actually knew what the numbers meant.

Filled with quiet self-confidence, I began my spiel. It was a beautiful presentation. I tied project benefits to business needs, the corporate mission and serving customers. To top it off, I had savings, an eye-popping ROI and four pounds of supporting documentation.

Nothing could go wrong. But it did. It blew up in my face. I wanted money to build a client/server application. Distributed applications cut across departments within IS — and within the core business. ROI be damned. I had poked a stick in the corporate beehive, and I didn't have a single end user at my side to control the angry swarm.

My intricate planning had included end-user management, but the users had asked me to handle the presentation. It's risky asking the big boys for money. Besides, funding reviews caused the users to crack walnuts between their knees. So, I handled it all myself. Oops!

The meeting reminded me of the National Geographic film where killer whales playfully toss a seal back and forth before eating it.

The heads of the various operating families toyed with me for 20 minutes. It reminded me of the National Geographic film where killer whales playfully toss a seal back and forth before eating it. The first presenter was lucky. He died quickly. The big boys told me they would get back to me.

The moral of the story: Justifying client/server projects requires out-of-box thinking. Users must help with the sales job. Client/server applications cut across multiple fiefdoms and cause many political problems. Also, many savings are soft, or intangible. User management can neutralize both problems.

I solved the first problem by letting user representatives directly manage application development people. This created a virtual team where the user represented the needs of the business unit and managed the people building the application. Think about it. It works.

The second problem is quantifying soft costs/benefits. These involve hard-to-measure items such as time saved and improved customer service. Using soft costs for justification is usually a credibility sink. Yet soft costs supported by expert testimony are believable. Such testimony can come only from end users.

I got my funding. It happened with users sitting at my elbow. The users educated their bosses, supported the ROI and spoke for the business need of the project. That's ROI — client/server style.

Dodge is a telecommunications department manager. His Internet address is mdodge@radiomail.net.

'Message received' – what took you so long?

Michael Schrage

For reasons less sinister than sly, the CIO of a global company now sends all his internal E-mail "receipt requested." He thus knows the time delay between when his little missives are sent and when his people immediately/finally get around to opening them. He also is able to calibrate the gap between receipt and response. It's become a nifty little management metric to track alacrity. And, yes, his people are well aware of his mail measurements.

Devious? Machiavellian? Or precisely the sort of tool savvy managers should use to tap the power of their networks?

What's so striking about this simple technique are not the fundamental issues of ethics or efficiency but rather, what it so strongly implies about the future of networked organizations. Technotactics such as this may seem like gimmicks, but they're destined to suck the business relevance right out of such cherished human values as openness, honesty and trust. A "Return Receipt" time stamp becomes more articulate than a dozen excuses.

Enterprise networks are less "information architectures" than they are architectures for verification.

When it came to negotiating with the Evil Empire, for example, Ronald Reagan was inordinately fond of saying, "Trust . . . but verify." Enterprise networks enable that accountability ethic to pervade the workplace. Indeed, enterprise networks are less "information architectures" than architectures for verification. What does trust mean or matter if your network lets you track who responds promptly — or not at all — to E-mail inquiries? What do I care if you give me your word to review my draft on-line if the network lets me see who looked at it? Someone may insist that they're a tireless worker, but how tireless can they be if the network reveals they've only seen the second version of that critical RFP?

Measures of network interaction are going to become important surrogates for assessing workplace diligence. By 1999, you can be sure that employee job reviews will be filled with computer readouts of just how people spent their time on the corporate network.

Needless to say, such network indices can be made far more objective and "quantifiable" than peer reviews. But that's hardly the key issue. In fact, it's just a symptom of the real transformation these networks are now inflicting on organizations. Essentially, our networks are evolving into infrastructures for accountability and verification. It is the medium of the network — not the personalities of the networkers — that will increasingly define the organization's meaning of trust, openness and integrity.

To be sure, network software such as "The Coordinator" for commitment tracking has been around for years. However, it's only been recently that organizations have grasped that these technologies are as valuable for surveillance as they are for business coordination and logistics. The simple truth is that networks are going to shift the organizational focus away from what people say they're doing to what the network says people are doing. You say Orwellian; I say Machiavellian — we can't call the whole network off. Personal trust is being supplanted by network design. These are the tools that IS will be expected to support for their organizations. Trust me on this.

Schrage is a fellow at the MIT Sloan School Center for Coordination Science and the MIT Media Lab. His Internet address is schrage@media-lab.mit.edu.

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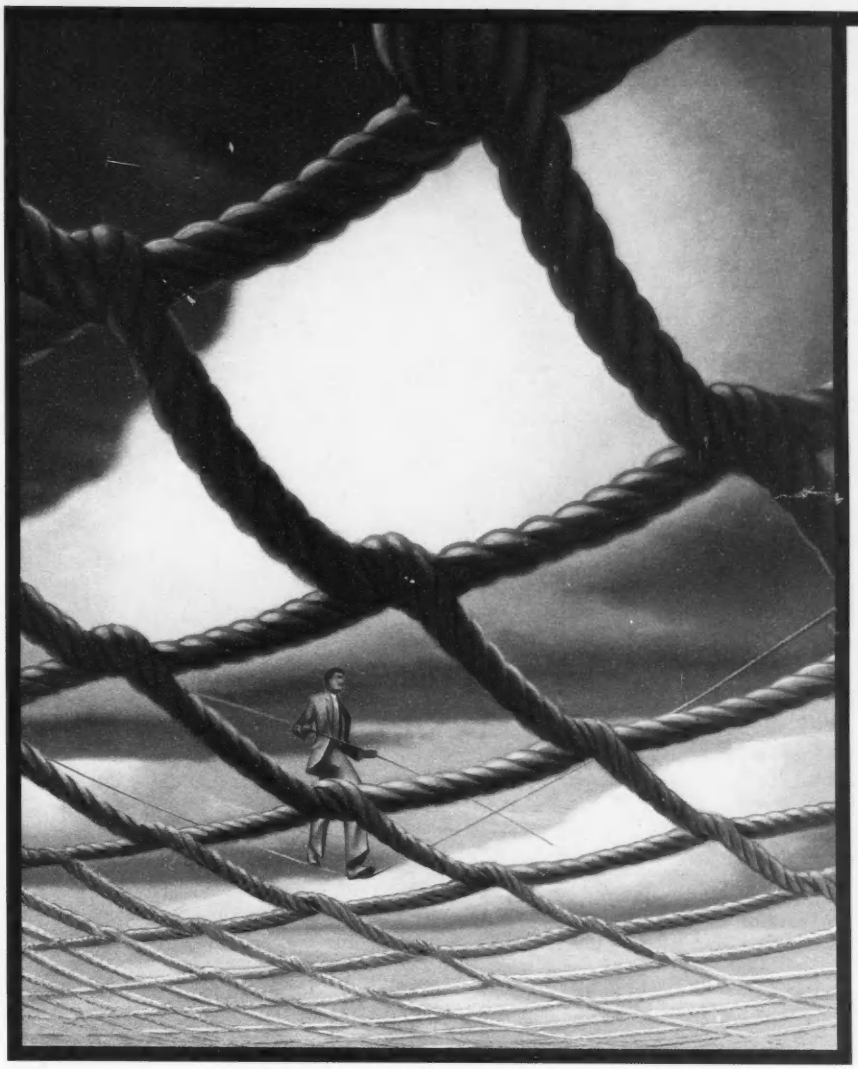

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Mobile technology

Hotel automation is booking bonanza

By Michael Fitzgerald

When ITT Sheraton Corp. checked into sales force automation, it discovered that the technology encourages customers to check in to its hotels.

Sheraton began automating its sales force on the corporate level last year. Prior to that, one of its franchises, the Sheraton City Centre Hotel in Washington, took the unusual step of automating its own internal sales force.

In both cases, the goal was to give salespeople better information on room availability for corporate conferences, which are crucial bookings in the hotel industry. Side benefits were establishing a sales presence in new markets and increasing employee happiness.

"This addresses one of my pet peeves in the industry," said Yale Feldman, general manager of the Washington City Centre. "We're one of the only industries that puts its salespeople in the factory and hopes [customers] come to us."

Feldman bought notebooks for his six salespeople. The notebooks tie in to the hotel's data network, which is based on Delphi, a turnkey hotel application from Newmarket Software Systems, Inc. in Portsmouth, N.H.

Sheraton City Centre's *automation project improves access to room availability information for salespeople on the road*

Man of the hour

Sheraton's sales force automation project was helped by technically savvy marketing executive Frank Camacho, vice president of sales and marketing. He "is a real believer in technology, and if we didn't have him as a sponsor, I don't think we'd be where we are today," said Pat Welch, Sheraton's manager of sales and marketing training and support.

Super sales

The notebook is already paying off for one salesman, who said he has quadrupled his bookings since receiving it. Michael Mulcahy said the notebook setup "gives me something with pizzazz" for cus-

Hotel, *page 45*

Acrobat puts flexibility into document viewing

By William Brandel

Adobe Systems, Inc. last week launched a developer program for its Acrobat 2.0 application. Portable and focused on vertical market applications, the initiative gained a warm reception from users and integrators.

Acrobat 2.0 comprises a development engine and a viewer. Unlike other document-viewing applications on the market, which are based on proprietary formats, Acrobat 2.0 was designed to give users the same look and feel across their desktop platforms and printers. This is achieved by the implementation of Portable Document Format (PDF), which is an open format for writing platform-independent documents.

Now, with an application programming interface and software developer's kit, Acrobat customers can build and manipulate their corporate applications and take advantage of the PDF capabilities. This is an important step for companies trying to integrate various documents from different sources into their information retrieval and disbursement strategies.

"There is no way The Associated Press or any other large information-based business can continue to support the proliferation of proprietary formats for viewing documents," said John Monahan, director of AP's graphics department.

In users' hands

Moreover, the developer program strikes an equally significant chord with users, Monahan said. Users must be able to easily design and build document-based applications that fit their needs.

"Adobe cannot meet every vertical need in the market," Monahan said. "And at the same time, we need a development format that will make document usage as pervasive as air."

"It is allowing us to do a much tighter level of integration between our application and the viewer's," said David Cutright, vice president of technology at Thomson Financial Services, Inc. in Boston. Thomson builds information retrieval applications for investment firms.

It is sensible for Adobe to focus its development efforts on vertical markets such as wire services and financial and pharmaceutical companies, said Angele Boyd, an analyst at International Data Corp. (IDC) in Framingham, Mass.

Because such markets also have a high degree of Macintosh and Unix workstations, along with Intel Corp.-based systems, the portability of the document-viewing capabilities is critical to the PDF and Adobe strategy.

"Investors run their desktop applications on Unix and PCs and pull their data from disparate sources," Cutright said. "In this context, PDF will probably become the standard, and Adobe development efforts make sense to us."

Acrobat 2.0 is shipping now.

Bag of tricks

Adobe provides support for developers with the following:

- Software developer's kit containing software, documentation and code.
- Development tools and technical support.
- Software developer's kit for developing "plug-in" integration applications.
- Application integration with Acrobat using interapplication communication.
- Class for developing Acrobat extensions.

Macintosh slice

While Intel-based systems dominate the document-viewing market, Macintoshes still make up more than 10% of those platforms, according to market research firm IDC.

Program connects biology with MTV generation

Students visualize science concepts through animation

By Kenneth Z. Chutchian

Carey Phillips uses the perceived enemies of classroom instruction — the rising influence of television and the declining impact of the printed word — to revolutionize the teaching of biology, from grade school to college.

Phillips, an associate professor of biology at Bowdoin College in Brunswick, Maine, has developed a computer program using CD-ROM technology that offers three-dimensional computer animation to illustrate complex scientific processes.

Last month, Phillips' prototype entered test marketing at Benjamin/Cummings in Redwood, Calif., one of the largest science textbook publishing companies in the country. Benjamin/Cummings wants Phillips to further develop the project for college biology courses.

It may be the first program of its kind in the country, according to Phillips and Benjamin/Cummings.

"I can certainly say I have not met anybody who is doing what Carey is doing," said Barbara Piercecchi, vice president and editorial director of Benjamin/Cummings. "What he brings to computer programming, to interfacing and to animation is matched only by his knowledge of what makes students learn."

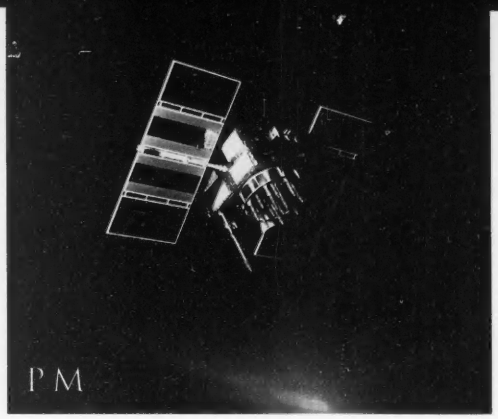
Years of frustration in trying to get freshmen and sophomores to grasp science concepts inspired Phillips to look for a means to play to the strengths of a video-oriented generation. The program has been five years in the making, but the need for it has been around a lot longer than that. Because it is still untitled, the program now goes by the name of Phillips' three-person research team, Interactive Knowledge.

Professor Carey Phillips *says Interactive Knowledge 'takes you out of memorization and into visualization'*

Visualize it

Interactive Knowledge "takes you out of memorization and into visualization," Phillips said. "The process of visualization is a dynamic event. Textbooks aren't very good at helping students do it." Only 15% of any group of people is capable of converting paper-based biological

Biology, *page 44*



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Biology

CONTINUED FROM PAGE 41

data into a three-dimensional visual image.

There's a very simple reason why no one has done what Interactive Knowledge is doing.

"The technology is just now becoming available," Phillips said. "There's a lot of good new programs that allow for 3-D modeling. What used to take me weeks, now takes me hours."

Apple Computer, Inc.'s QuickTime 2.0 has enabled Phillips to develop animation movies. Also contributing to Phillips' breakthrough were Adobe Systems, Inc.'s Premier, Apple's Movie Shop and Convert to Movie, Equalibrium, Inc.'s DeBabblizer and Crystal Graphics, Inc.'s Crystal Topas. The evolution of standard CD-ROM drives to double-speed helped considerably.

> "We create illusions to engage the viewer. In Disney animations they skip frames all the time. The human mind is good at filling in shapes."
>
> — Carey Phillips, associate professor of biology, Bowdoin College

In traditional biology courses from grade school through college, "the information we're getting across is not available in 3-D," Phillips said. "If you want to get inside a cell, there's absolutely no way to do that."

Hands-on learning

With Interactive Knowledge, the fundamentals of learning biology shift from assimilation of facts in a linear fashion to witnessing and participating in molecular mechanics.

Students can "fly" through the 3-D world of the vertebrate circulatory system, for example. The observation of antibodies being produced can help students conceptualize and understand how antibodies are formed and how they work. If an invader attacks the vertebrate system, the student can respond by finding the invader, recognizing the course of action and manually turning on the necessary cell and molecular functions.

Interactive Knowledge offers access to databases — both text and animated demonstrations — that is nearly instantaneous.

"If you set up your interface and data matrix correctly, it's a matter of pressing buttons to access information and solve problems," Phillips said.

To make the program accessible to biology students from sixth grade to premed, Phillips had to ensure that Interactive Knowledge could work on a comprehensive array of systems, from Macintoshes to PCs to fiber-optic networks.

But long before he got to that stage, he had to take a detour from biology to immerse himself and his students in the world of animation.

"Kids can relate to art before words," Phillips said. "We intend to use the art in animation as a tool."

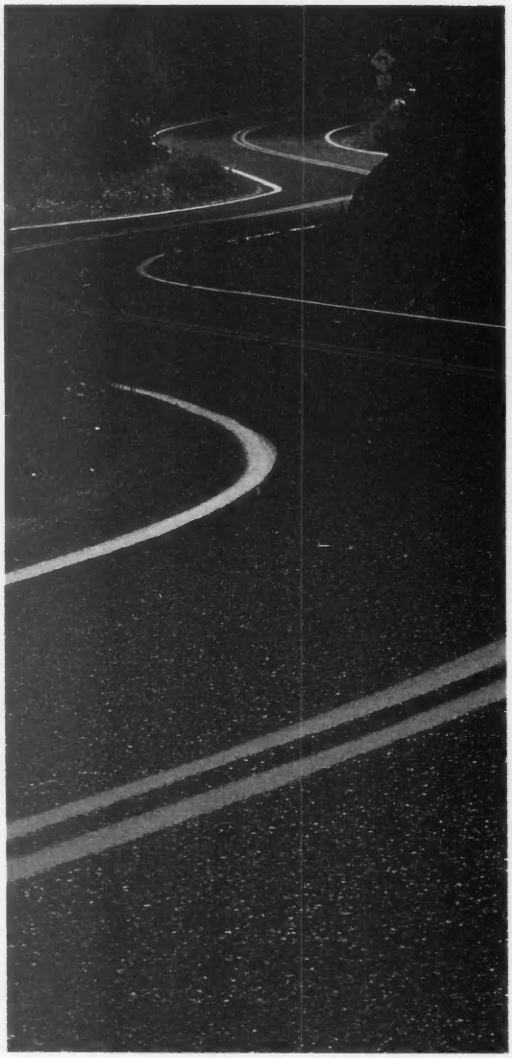
"We create illusions to engage the viewer," he said. "In Disney animations, they skip frames all the time. The human mind is good at filling in shapes. You can use visual cues to keep people's attention." Thus Phillips and his students could make animation movies with 12 to 15 frames per second rather than the more traditional rate of 30 frames per second.

Five years ago, Phillips secured a National Science Foundation grant to build Interactive Knowledge and use his own students as guinea pigs. The explosion of applicable programs to help him with each stage of development during that time frame makes his early efforts look primitive. Now he can put 100 minutes of his program on a CD. A few months ago, he could put only about 25 minutes on a CD.

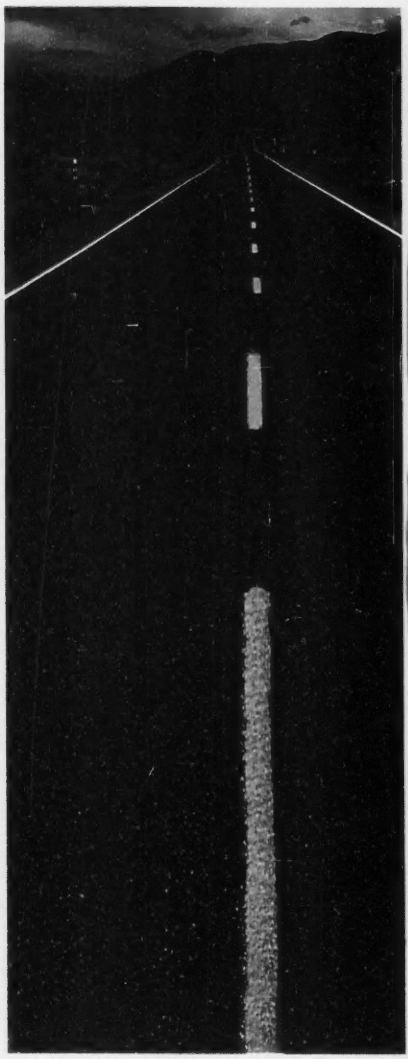
"The animation will allow students to interact with information that is only in my head," Phillips said. "After 15 years of teaching, I can guess how the students will use it. But the proof is in the students."

Chutchian is a freelance writer in South Harpswell, Maine.

Which route would you take



Other parallel database software



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Hotel

CONTINUED FROM PAGE 41

tomer meetings, in particular, the ability to work out quotes in the customer's office.

City Centre is the first Sheraton hotel to automate its internal sales force, and it did so independently of the corporation's initiative to automate its sales group. Boston-based Sheraton doubled its sales force to approximately 70 people, 28 of whom currently have notebooks. Sheraton plans to outfit the rest of them with notebooks this year.

The corporate project started as a way to keep workers happy. Sheraton purchased its first notebooks when four members of the Sheraton sales force became pregnant at roughly the same time.

"They wanted to work from home, so the first laptops we bought were for these ladies," said Pat Welch, Sheraton's manager of sales and marketing training and support. She said this experiment worked so well that it prompted the company to explore the best ways to exploit mobile technology.

Among other things, Sheraton has gained a way to affordably expand into secondary market areas such as Raleigh, N.C., Syracuse, N.Y., and Kansas City, Mo. — areas where an entire office was not cost-effective, but a salesperson working out of the home was affordable.

"It makes tremendous financial sense and makes employees happy," Welch said.

The sales representatives use 25/50-MHz Intel Corp. I486-based Globalyst notebooks from AT&T Global Information Solutions; data-intensive users have notebooks with a 25/75-MHz DX4 chip. The 340M-byte hard drive has a specific application set installed by its reseller, a unit of Entex Information Services in Rye Brook, N.Y.

Fully stocked

Applications on the notebook include Windows; Novell, Inc.'s WordPerfect 6.0A; Symantec Corp.'s PCAnywhere 5.0; and Lotus Development Corp.'s 1-2-3 4.0 for Windows, Freelance graphics package and Organizer program. Access to CompuServe, Inc.'s Meeting Planners International network is also included.

The users also get an AT&T Corp. Keep-in-Touch modem and a cellular phone that can be connected to the modem to allow for cellular communications. In the future, this should enable Sheraton's sales force to sit in a customer's office and check dates and space in each hotel.

For now, however, the cellular network has not come of age. "It's not quite ready for prime time," Welch said.

For example, she cited network issues such as making reliable connections, particularly at the start or end of a work day in a large city such as New York or Los Angeles. Welch said Sheraton's ongoing tests are encouraging, but "we are still experimenting with [cellular]. You don't want to put people in a position where they can't perform."

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Inserts	No	Yes
Selects	Yes	Yes
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Deletes	No	Yes

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New Products

Trend Micro Devices, Inc. has announced Mobile Protect, file transfer software for laptops with antivirus protection.

According to the Torrance, Calif., company, Mobile Protect can scan or transfer a single file or whole directories of the controller or remote system.

The product scans for viruses in real time during file transfer, cleans viruses residing in code, tracks down boot viruses and guards drives and memory.

Mobile Protect costs $79.

▶ *Trend Micro Devices*
(310) 782-8190

Micro Logic Corp. has announced Info Select Express, a personal information manager.

According to the Hackensack, N.J., company, Info Select Express uses a stack of free-form information windows and a high-speed search engine instead of a structured system to store and retrieve information.

Info Select Express costs $19 and is geared to users managing miscellaneous or unstructured information.

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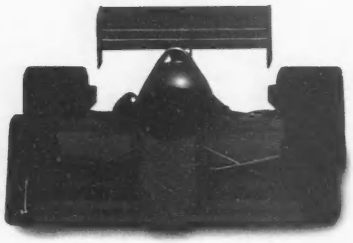

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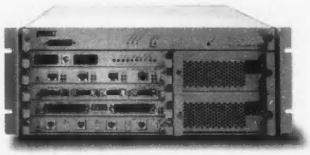
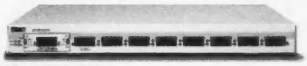


EliteSwitch ES/1



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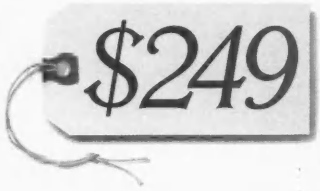

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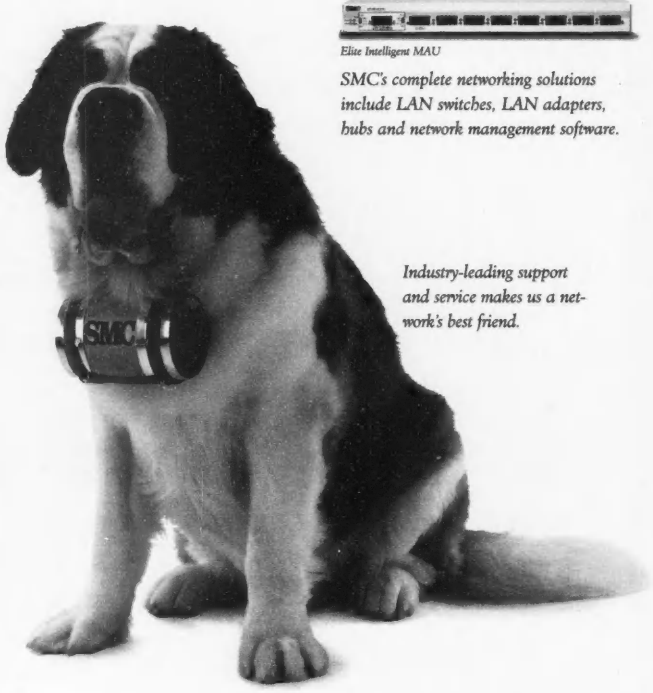

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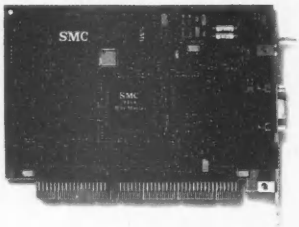

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Vendors go workflow

Releases reflect new focus

By Mary Brandel

Question: When is an imaging company not an imaging company?

Answer: When it wants to be a workflow company.

That is part of the idea behind the latest releases from two traditional imaging/workflow vendors, ViewStar Corp. and FileNet Corp.

In fact, FileNet's Visual WorkFlo, introduced last month, is a workflow development environment with no imaging component.

"This is a big departure for FileNet, which has been emphatic about the fact that workflow means imaging," said Ronni Marshak, an analyst at Patricia Seybold Group in Boston. "They've taken the blinders off and are seeing the world more realistically."

The system, she said, treats all objects equally, whether they are images, spreadsheets, voice or video.

The long view

"They've really opened it into a development tool," said Loretta Goralczyk, imaging manager at American Presidents Line Ltd., a shipping company in Oakland, Calif. "You can take existing applications that have been written in [PowerBuilder or Visual Basic] and add a workflow layer on top."

In two years, American Presidents has built 17 workflow applications, and Goralczyk said she sees 10 additional projects where Visual WorkFlo could be applied.

The ability to reuse objects in Visual WorkFlo's library "is a tremendous advantage," Goralczyk said. "The business units need better

Workflow, *page 49*

IBM readies peer-to-peer for OS/2 LAN Client offering

By Ed Scannell

■ After a year of jumping back and forth over the fence, IBM appears to be settling on a strategy for bundling and positioning its peer-to-peer networking capability for OS/2.

IBM sent out a preliminary beta version of the product earlier this month to a small circle of third-party developers and told them it plans to include the technology, called IBM Peer for OS/2, in its upcoming OS/2 LAN Client. The company hopes to deliver the bundle "in late spring or early summer," according to two developers briefed by the company.

"They have decided to wrap it in with [OS/2 LAN Client] and offer a product that gives users a variety of networking capabilities in one package," said one developer, who asked not to be named.

OS/2 LAN Client is expected to include OS/2 Warp and contain requesters for IBM's LAN Server 4.0 and LAN Distance, Novell, Inc.'s NetWare, various enhanced TCP/IP applications and system administration tools.

The company still intends to include a BonusPak similar to the one in OS/2 Warp, although company officials have yet to decide on exactly what set of applications or network applets it will bundle, developers said.

Change of heart

In the past year or two, IBM has been hesitant to bundle peer-to-peer capabilities with its operating systems. That hesitancy was based on feedback from some corporate information systems managers who appeared to prefer server-based solutions.

Other IS managers said peer-to-peer networks make it too easy for users to access sensitive information; still others said the expense of maintaining such networks at the departmental level is not worth the return.

But now some corporate users say they would have little difficulty justifying at least niche applications among groups of about 10 or 20 users who work closely together.

"I wouldn't mind seeing it wrapped into [OS/2] LAN Client if there were a facility that allowed me to get in and administer and manipulate it," said Frank Petersmark, head of technical service at Amerisure & Co., an insurance company in Southfield, Mich.

"I still think there is a strong niche for peer-to-peer. I don't see it going away any time soon," said Jeff Headley, a systems architect at First Union National Bank in Charlotte, N.C. "If I had to give them advice, it would be to get their heads straight and get it out."

Petersmark and Headley, as well as others interviewed, said they have had to tinker with IBM's Advanced Program-to-Program Communications (APPC) to make peer-to-peer communications work the way they needed.

"We have had to write our own Rexx routines for APPC and have used it to pretty good advantage, but I'd rather see them formalize this by building it into something like [OS/2] LAN Client," Petersmark said.

OS/2 LAN Client, due out this spring, is expected to beat by several months Microsoft Corp.'s Windows 95, which also has built-in peer-to-peer networking.

But some critics say Microsoft may have done a smoother job integrating its peer-to-peer networking with its operating system than IBM, whose product one analyst described as somewhat kludgy.

With OS/2 LAN Client, "IBM is saying you can do peer-to-peer, but to do remote access you must use another product, and to get out to a server you have to use another," said John Dunkle, president of WorkGroup Technologies, Inc. in Hampton, N.H. "To use LAN Client you have to be smart, but Win95 gives users the luxury of being stupid."

LAN lineup

IBM's new networking offerings include the following:

IBM Peer for OS/2: Peer-to-peer technology, scheduled to be included as part of OS/2 LAN Client, enables users to share all resources on the network, including hard drives, printers or modems.

LAN Server 4.0: Departmental server comprises OS/2 Warp and LAN Server and connects OS/2 Warp desktop machines.

LAN Distance: Allows remote users access to a LAN server, clients on that server and all resources available on the central network.

LAN Server Ultimedia: Permits delivery of multimedia applications over users' existing LANs; is compatible with IBM Peer for OS/2.

Disk defragmenter arrives for NT

Rewriting utility restores speed

By Stuart J. Johnston

Executive Software International, Inc. is preparing to ship the first disk-defragmenting utility for Microsoft Corp.'s Windows NT, according to the Glendale, Calif., company.

Diskeeper for Windows NT, scheduled to ship this quarter, provides a "set and forget" tool that runs in the background on NT-based systems. It continuously writes and rewrites files so they are not spread out in fragments all over the disk system.

Many files on a hard disk become fragmented over time because space is alternately freed up when a file is deleted and reused when a new file is written. Because a new file may be larger or smaller than the space freed up, the file may be broken up and written in several different places on the disk. This does not render files unreadable but forces the file system to hunt around in a peripatetic manner, gathering all the fragments to assemble a file before the user gets it, thus slowing disk performance.

A disk defragmenter methodically rewrites files on clear areas of the disk so that all of the portions of a file are stored contiguously, thus speeding disk access.

Disk-defragmenting utilities have existed on systems such as MS-DOS for years, but NT is fairly new, and its file system, called the NT File System (NTFS), was designed to provide a much higher level of security than DOS. For that reason, Executive Software had to work closely with Microsoft to develop Diskeeper, the company said.

Beta testers hailed the product.

"It definitely improves [disk performance for] electronic mail because mail files are constantly being written and rewritten, [and] from that standpoint [Diskeeper] is definitely a blessing," said Curtis Oliff, networking/systems coordinator at the County of Alameda Ambulatory Care Services in Oakland, Calif.

"It continually scans the hard drive in the background. You never notice it is there," said Alan Corker, a network systems administrator for the British government.

"I definitely see the difference. As much as NTFS tries to logically place files, if it doesn't have much space, it doesn't have much choice," said Gerald Michaud, a programmer and systems manager at a major industrial manufacturer in East Hartford, Conn.

Diskeeper for Windows NT will ship possibly as early as February, according to an Executive Software spokesman. It will cost $349 for Windows NT Server and $149 for NT Workstation.

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60. Sys. Integrators/VARs/Consulting Management
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11. President, Owner/Partner, General Manager
12. Vice President, Asst. VP
13. Treasurer, Controller, Financial Officer

DEPARTMENTAL MANAGEMENT
51. Sales & Mktg. Management
70. Medical, Legal, Accounting Management
OTHER PROFESSIONAL MANAGEMENT
80. Information Centers/Libraries, Educators, Journalists, Students
90. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply)

Operating Systems
(a) Solaris (e) Mac OS
(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep

App. Development Products ❑ Yes ❑ No
Networking Products ❑ Yes ❑ No

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LAN server surge continues

Network needs, diversified use fuel sales increase

By Jaikumar Vijayan

■ Worldwide LAN server sales growth continued unabated, increasing 27½% between 1993 and 1994, according to a recent report by International Data Corp. (IDC) in Framingham, Mass.

Driving this growth is the continuing corporate trend to downsize and implement more robust applications on LANs and a growing trend to invest in LANs as core information technology building blocks, the report said.

According to IDC, LAN server sales in 1994 were particularly active in small and medium-size companies and within remote sites of larger corporations.

Typically these servers consist of single- and, in some cases, dual-processor PC servers with list prices less than $7,000.

At the same time, sales of PCs to larger corporations continued to increase during the year, with network sizes averaging 16.8 nodes — up from 15.1 in 1993.

Improved systems and network management capabilities and greater availability were two other significant factors that have helped shape the LAN server market in the past year, Kucharvy said.

On the hardware side, the average LAN server packed more punch in 1994, with a pronounced trend toward Intel Corp. Pentium and Peripheral Component Interconnect technology. Typical server configurations packed between 16M to 32M bytes of RAM and 2G bytes of storage, according to the report.

1995 could see a consolidation of the LAN server market, Kucharvy said. Compaq Computer Corp., IBM and Hewlett-Packard Co. currently dominate the LAN server market with a combined market share in excess of 60%. Compaq, in particular, dominates the field with close to a 30% share, followed by IBM. HP, which currently holds third place, increased its market share from 10% to slightly less than 15%.

Popular product differentiators such as Compaq's integrated SmartStart systems management software and HP's and IBM's server management software will further help these companies distance themselves from the competition, Kucharvy said. These companies have also begun to offer new rack-mount products and redundant hardware components for greater availability and reliability.

Worldwide LAN server market

	1992	1993	1994
Average configuration cost	$6,265	$6,288	$6,294
Revenue	$5.32B	$6.84B	$8.73B
Shipments	849,000	1.09M	1.39M

Source: International Data Corp., Framingham, Mass.

Changing times

Growing network sizes and increased remote connectivity have led to an increased demand for more performance, storage, memory, network management and remote systems management capabilities, the IDC report said.

"There has been a rapid move toward adoption of application servers and what seems to be a trend toward solution servers" that provide users with turnkey solutions, said Tom Kucharvy, president of Summit Strategies in Boston.

According to the IDC report, although LAN servers are still installed primarily for file or print services, a growing number of them are being used as database and application servers. Application servers account for 26.1% of worldwide LAN server sales.

New Products

Cheyenne Software, Inc. has announced Arcserve for Windows NT, storage management software for Microsoft Corp.'s Windows NT operating platform.

According to the Roslyn Heights, N.Y., company, Arcserve for Windows NT functions as an operating system service and provides the same features as Cheyenne's Arcserve for Novell, Inc.'s NetWare, including session password protection and network and file security.

Arcserve for Windows NT costs $895.

▶ *Cheyenne Software*
(516) 484-5110

Stampede Technologies, Inc. has announced Remote Office Gold 2.0, universal remote-access client software.

According to the Dayton, Ohio, company, Remote Office Gold 2.0 provides remote access to numerous third-party Point-to-Point Protocol routers and communications servers.

The product can run IP and IPX concurrently and includes dial-on-demand capabilities.

Remote Office Gold 2.0 costs $895 for eight ports and $1,790 for 16 ports.

▶ *Stampede Technologies*
(513) 291-5035

Insitu, Inc. has announced Insitu Conference, distributed Microsoft Corp. Object Linking and Embedding 2.0 container-based document conferencing software.

According to the Boston company, Insitu Conference includes ownership of annotations, objects or image snaps by the creating user, so users can define the type of meeting, conference or discussion they want.

The telephone conference is integrated into the product's document conference via Microsoft's and Intel Corp.'s telephony application programming interface.

Insitu Conference costs $269.

▶ *Insitu*
(617) 720-0821

Vendors go workflow

CONTINUED FROM PAGE 47

turnaround time."

Visual WorkFlo runs on Oracle Corp.'s namesake database with Windows clients.

ViewStar will include in its 4.0 version an icon-based workflow design tool called Process Architect that is geared toward business analysts involved in process re-engineering, not toward information systems developers.

"The goal of the release is to enable workflow building by mere mortals," said Steve Russell, vice president of marketing at ViewStar.

Unlike other workflow mapping tools, Process Architect runs separately from the ViewStar system on an 80386- or 80486-based PC or laptop with 4M bytes of RAM and 10M to 12M bytes of hard disk. Once the workflow is designed, it can be attached to the ViewStar back-end system to compile the work objects and build the actual workflows, Russell said.

Because it is portable, Process Architect will allow more people in an organization to get an idea of what workflow is capable of, said Bruce Silver, president at Bruce Silver Associates in Weston, Mass. "And as an added bonus, they've already taken one step toward actually building a system," he said.

"It's something [a business analyst] can give to a developer and say, 'This is what I want. Go do it,'" said Parag Patel, a business process analyst at Texas Commerce Bank in Houston, which currently uses ViewStar 3.1.1.

Separating workflow design from the overall system is a trend that other vendors, such as IBM and Wang Laboratories, Inc., will follow, analysts said. However, "a superior tool" would work with any back-end system, not just its own, as ViewStar's does, said Nathaniel Palmer, an analyst at Delphi Consulting Group in Boston.

ViewStar 4.0, which began shipping in December, will cost $60,000 for an entry-level system for 15 to 20 users. For larger systems, pricing will be $2,000 per seat. Process Architect is also sold separately at $4,995 per user. It runs on DOS 3.1 or Windows clients.

Visual WorkFlo includes three components: a runtime program called Visual WorkFlo/Performer for $495; a system administration module called Visual WorkFlo/Conductor for $1,995; and a Windows-based authoring tool called Visual WorkFlo/Composer for $4,995.

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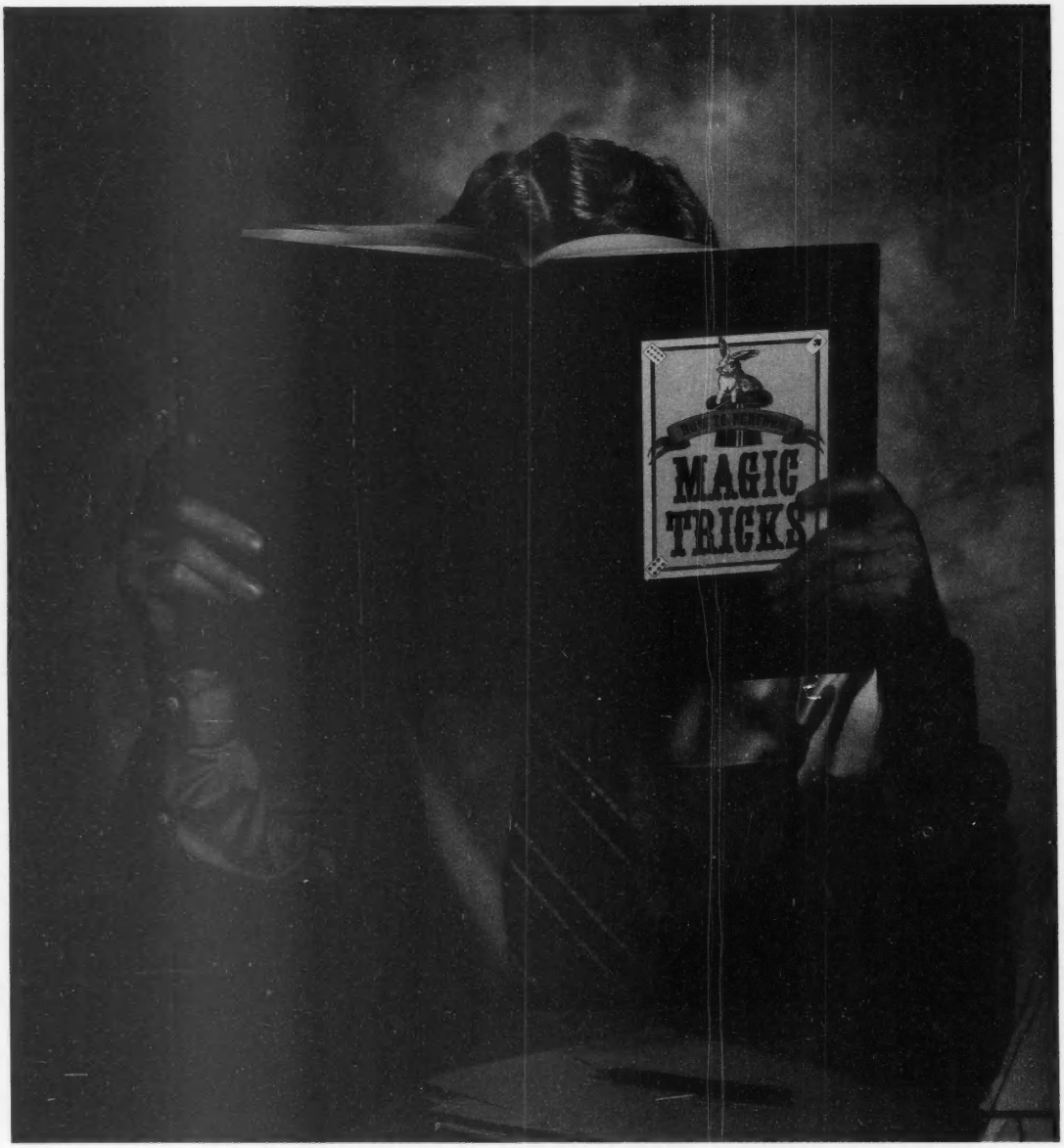

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Practicality of wireless applications grows

Stanford beta lets untethered PC users reach LAN

By Jean S. Bozman
PALO ALTO, CALIF.

In an experiment to widen the reach of its enterprise network, Stanford University will this month expand access to a prototype wireless network to hundreds of students and faculty all over this palm-lined university campus.

No longer tethered to physical LANs, students will be able to walk their portable PCs and Apple Computer, Inc. PowerBooks outside and do their work in breezeways and on benches. They will also be able to use the wireless connections to log on from study carrels in campus libraries, cafeterias and dormitory rooms. The wireless system operates at radio frequencies of 902 to 928 MHz using spread-spectrum technology developed by the military.

Have brick, will travel

Stanford has been testing a radio-based wireless network built and owned by $10.1 million Metricom, Inc. in Los Gatos, Calif., since last summer. During the first phase of the beta test, 25 users attached a wireless modem to their portable PCs and walked them around campus. The small modem device, known as a brick, is strapped on to PCs with a Velcro strip and plugged into the PC's serial port.

While the beta test is still under way, it could expand to 100 users or more in several months. "The aim is to extend the reach of our networks," said Raman Khanna, director of Stanford's distributed computing group. "I believe very strongly that wireless networks are a way to get to wired networks. In a building, you have a wired connection to one or two locations. Now you can roam around to any place, and wireless is taking you to the closest wired point."

Radio signals travel between the wireless modems and some 20 pole-top radio devices linked in a campus network. Each modem seeks the nearest pole-top radio, and then a network directory automatically switches users to servers. Users can access the Internet, America Online and CompuServe.

The range of the radio transmitters is **Stanford,** *page 58*

Utility readies drive-by, wireless meter reading

By Julia King

A small miracle is unfolding at Philadelphia Gas Works: The problem-plagued, $600 million-a-year municipal utility is ahead of schedule on a massive customer service project involving the installation of more than 500,000 radio frequency-based meter readers.

KATHRYN ADAMS

But forget divine intervention. A year-long pilot project, thorough planning and many hours of preinstallation legwork on the part of the 70-person information systems department are responsible, according to Tom Kuczynski, manager of IS at Philadelphia Gas Works (PGW).

Beginning with the pilot project, "we went through a long research period, so we had a pretty good handle on the [wireless] technology," Kuczynski said. "We also were involved in the design of the application, defining all requirements needs and customizing it to PGW's needs."

PGW is heading into the new year having equipped 90,000 residences — about 15,000 more than was planned for 1994 — with wireless meter readers from Minneapolis-based Enscan, Inc. During the next six years, the utility will install about 560,000 of the devices, which will be read electronically on a drive-by basis by PGW staffers using radio equipment and PCs mounted in vans.

Phone lines considered

Kuczynski said PGW had initially investigated a scheme whereby usage data would be transmitted to the company over customers' telephone lines. But the idea was abandoned, primarily due to concerns about customers' privacy and the complexities associated with installing new wire.

With the wireless system, customer and route information stored on an IBM 3090 mainframe will be downloaded to the Enscan DOS-based meter reading software. At day's end, meter readings will then be uploaded to the mainframe and posted to PGW's main customer information database.

Improving customer service — now much maligned by ratepayers — and cut-

Utility, *page 58*

Commentary

Ellis Booker

My Web, & welcome to it

The truth is, I don't have my own World-Wide Web page yet. So don't go looking for Booker's Bookmark.

But thousands of other folks — not corporations, not government agencies, not publishing behemoths — have created individual Web home pages that can be accessed across the Internet.

What are these self-expressions all about? An informal survey finds them to be as idiosyncratic and varied as any homemade Christmas card. (More on that in a bit.)

Some are of dubious value: "Hi, I'm Dan. Is this neat or what!" This was accompanied by a poorly scanned black and white image of Dan.

Others are extraordinarily well designed and written, with engaging, ever-changing hyperlinks to the owner's favorite Internet hangouts.

In his keynote at Internet World '94 in Washington in December, Jim Clark, chairman of Netscape Communications in Mountain View, Calif., predicted a time when everyone on the planet would have his or her own Web page. While Clark probably hopes each of these Webs will use Netscape's server software, his bold prediction makes sense.

I still remember the first of many homemade Christmas cards I started getting from friends who had discovered mail merge, color printers and seasonally appropriate clip art.

Now, suppose instead of a static letter, you could invite your friends and colleagues to explore *all* the neat stuff on your hard drive: text, programs, images, WAV files, video clips.

Just like homemade Christmas cards, most of these personal Webs will be amusingly amateurish. But others will contain links, information and services (say, a searchable image database of Peruvian artifacts) for which people will be willing to pay money.

So much for home-based Web businesses.

What about Web pages that individual employees own and run from their desktops at work?

Take Sun Microsystems in Mountain View, Calif. Sun has 32 external Web sites. But inside Sun, another 700 Webs — many owned by individuals — are pressed up against the firewall.

"The real issue becomes whether or not to publish this [content] outside of the firewall," said a Sun source familiar with the situation.

IBM is addressing the identical issue and is currently drafting a short policy for employees about Web publishing, according to an IBM source.

Early Web adopters such as Sun and IBM are facing issues that will surely confront the rest of us eventually.

At the very same time that organizations have begun to exploit the Internet ("We here at XYZ Plastics are proud to announce our first Web site"), individual Webs are sprouting quietly in the shadows.

Viewed in this way, individual Webs are to corporate Webs what the desktop PC was to the mainframe. They will be a chaotic phenomenon — a headache for IS and network managers, to be sure. But more important, they will challenge the central system, both by sheer numbers and powerful innovations. It will be a grassroots approach to publishing and disseminating information that will have profound implications on how business is organized in the future.

And as was the case in the PC revolution, successful businesses in this future will be the ones able to build bridges — between big Webs and small, between the organization and the individual.

Booker is a *Computerworld* senior editor in Chicago.

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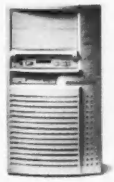

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Eicon Technology Corp. has announced Access for Windows NT 3270 and Access for Windows NT 5250 3.21, stand-alone desktop connectivity software for Microsoft Corp. Windows NT users accessing host-based information.

According to the Montreal firm, the products include Microsoft's SNA Server 2.1 technology and Eicon's wide-area network drivers. They support SNA connections and include application programming interface libraries and host graphics.

Access for Windows NT 3270 and Access for Windows NT 5250 3.21 cost $495.

▶ *Eicon Technology*
(514) 631-2592

StonyBrook Services, Inc. has announced RouterManager (Stand Alone) for Windows, Simple Network Management Protocol-based software that manages multiprotocol router networks.

According to the Bohemia, N.Y., firm, users can manage a variety of routers from a common console. Modules are available for Cisco Systems, Inc., Bay Networks, Inc. and 3Com Corp. routers. Features include fault management, historical and real-time network utilization statistics and configuration verification of all routers or a group of routers from one location.

RouterManager (Stand Alone) for Windows costs $1,995.

▶ *StonyBrook Services*
(516) 567-6060

Ascend Communications, Inc. has announced Pipeline 50HX, a full-function bridge and IP router.

According to the Alameda, Calif., firm, Pipeline 50HX provides Ethernet to Integrated Services Digital Network Basic Rate Interface with integrated NT1 (U interface). It also includes dial-on-demand routing and bridging, inverse multiplexing, dynamic bandwidth allocation, compression, filtering, Simple Network Management Protocol management and security.

The modem-size unit was designed for telecommuting and single-user Internet access.

Prices range from $995 to $1,195.

▶ *Ascend Communications*
(510) 769-6001

NetVantage, Inc. has announced the NV7500 Ethernet switch.

According to the Santa Monica, Calif., firm, the NV7500 is an eight-port, Simple Network Management Protocol (SNMP)-managed Ethernet switch that provides a standard SNMP management interface and a proprietary local configuration manager. It can support up to 16,000 Ethernet addresses in switching mode.

The NV7500 costs $400 per port.

▶ *NetVantage*
(310) 828-9898

Fibermux Corp. has announced the CrossSwitch FX304, an Ethernet switch.

According to the Chatsworth, Calif., company, CrossSwitch FX034 features flow control to eliminate dropped packets during transmission, on-the-fly switching, selectable latency, full duplex support and Simple Network Management Protocol management.

Prices range from $2,895 to $3,700.

▶ *Fibermux*
(818) 709-6000

No relief in sight for net complexity

Managing client/server setups is a top concern

By Steve Moore

For network and systems managers, 1995 looks like yet another year of living dangerously. As users migrate from host-based computing to client/server technologies, chaos will continue to be the order of the day.

Some users think it wise to bide their time while vendors compete to persuade them to adopt products based on their management frameworks, interfaces and middleware layers — many of which are still unproved. "Right now, honestly, I'm having trouble looking at the future because I'm so swamped by the present," said Paul Edmunds, a senior information systems analyst at Duke Power Co. in Charlotte, N.C.

No leading-edge technology will likely be brought to market this year in network and systems management, observers said. Instead, vendors will work to deliver on promises already made, and users will continue to hone their survival strategies.

These strategies are increasingly important as users deploy new management applications to support an ever-larger number of desktops. Without a solid implementation strategy, users could face "complexity inflation" that might lead to lower quality service, warned John Morency, principal consultant at Strategic Networks Consulting, Inc. in Rockland, Mass.

Some users cope through organizational consolidation. "Three years ago it would have been rare to see an organization purchasing a cross section of network and systems management tools and assigning the same operators to use them," said Gordon MacKinney, OpenView program manager at Hewlett-Packard Co. That strategy is evident today and will become more common next year, he said.

DAVE MARSHALL

Another likely trend this year is that "people will start seriously looking at the need for systems management in the client/server world as they move beyond the early adopter phase into large-scale applications," said Paul Mason, research manager for enterprise systems management at International Data Corp. in Framingham, Mass.

Even as mainframe-oriented systems management vendors drill down to local servers and clients, many vendors of PC-oriented management applications are burrowing up toward midrange servers and high-end hosts.

Both types of vendors are finding it necessary to integrate — or at least interface — with one or more high-end network management platform vendors such as HP, IBM and SunSoft, Inc. and one or more domain management systems such as Cabletron Systems, Inc.'s Spectrum or Cisco Systems, Inc.'s CiscoWorks.

Database management and applications management will also get more attention this year, said Rick Sturm, a senior technical staff member at US West, Inc. in Denver. "We will see enough work done in 1995 to warrant the formation of an [Internet Engineering Task Force] working group to establish a standard [management information base] for applications management," he said. "That will open up a huge market for applications management software."

Additionally, "1995 will be the year that vendors have to put up or shut up," said Frank Moss, chief executive officer at Tivoli Systems, Inc. in Austin, Texas. Instead of issuing yet another round of future-oriented press releases, he said, vendors must demonstrate "successful implementations of large-scale management solutions in customer environments."

In Depth: Client/server systems management. See page 77

CrossComm bolsters router software

By Stephen P. Klett Jr.

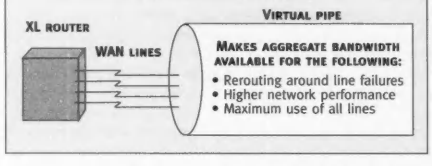
CrossComm Corp. last month released software that is said to improve the reliability of wide-area data communications as well as provide higher network throughput.

Called XL Transmission Groups, the software runs on the Marlboro, Mass., company's line of XL routers and was designed to provide a single "virtual" communications line, or pipe, from up to four physical communications lines (see chart). In this manner, the four lines are treated as one. If one line should fail, data is directed or rerouted over another line to keep applications running without disruption, the firm said.

"Every user I come across always says reliability is the No. 1 requirement, so anything a vendor does to increase reliability is very valuable," said Eric Hindin, an analyst at Strategic Networks Consulting, Inc. in Rockland, Mass.

Group transmission

CrossComm XL Transmission Group Software connects multiple wide-area network lines that run in parallel to create a single "virtual" transmission pipe



While Hindin said most router vendors offer similar software, CrossComm is the first to support all major protocols, including SNA, TCP/IP and IPX. "This takes it one step further," he said.

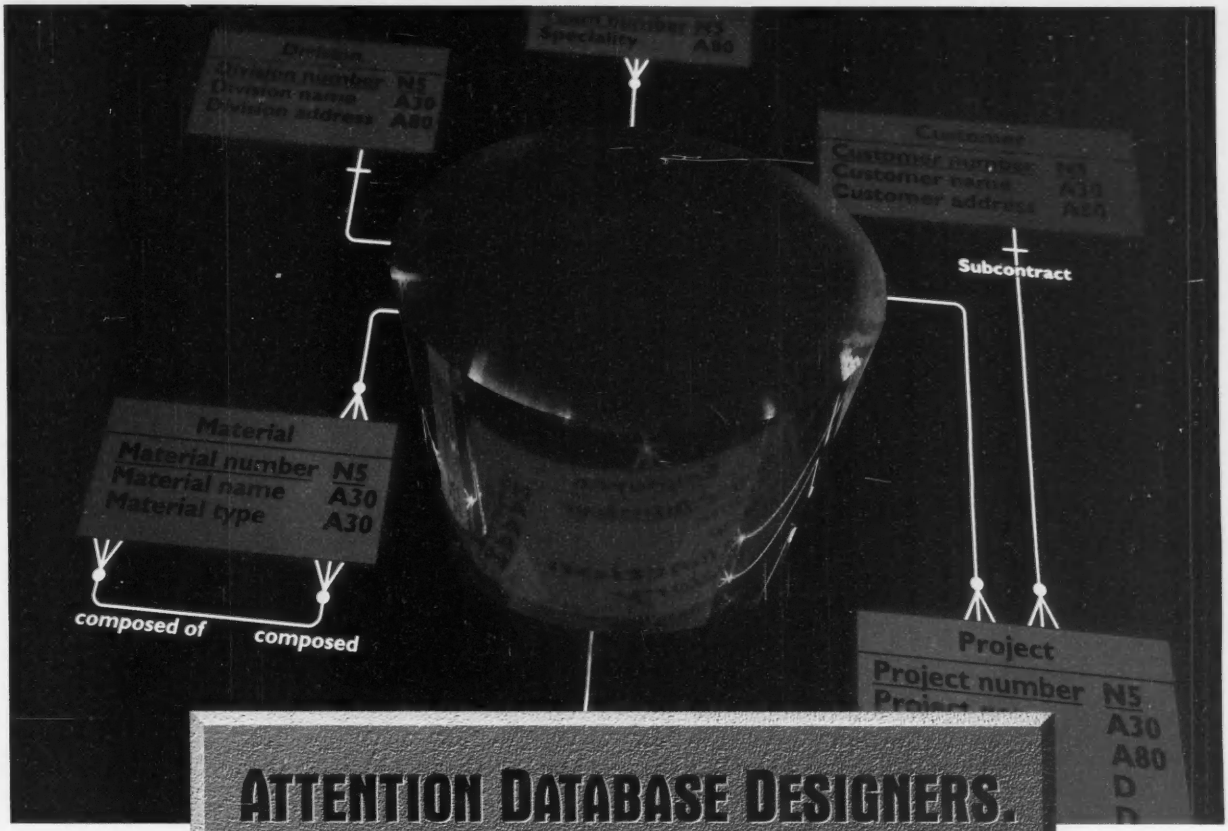
XL Transmission Groups also provides a feature called dynamic load balancing, which essentially means all four wide-area links can be used by a single user or application. This results in the highest performance possible while ensuring that the capacity of each line is being used to the fullest, CrossComm said.

XL Transmission Groups was designed to provide the following:

- **Fault resilience:** Alternate routing and dial backup combine to provide the highest level of fault tolerance possible. Even if all four links should fail, the software will find an alternate path, CrossComm said.
- **End-user transparency:** No changes to application software or user procedures are required.
- **Multiprotocol support:** When used with CrossComm's Protocol Independent Routing software, XL Transmission Groups allows SNA and LAN protocols to be routed simultaneously over a common network.

According to Hindin, these features are just the tip of the iceberg. "Eventually, the software will get to the point where it provides dynamic bandwidth allocation — but no one has that yet," he said. For instance, Hindin said the next logical step for XL Transmission Groups would be for the software to automatically add a fifth data line if extra bandwidth is needed.

XL Transmission Groups will be included with CrossComm's standard XL router software starting this month at no extra charge. Current customers can receive free upgrades as well.



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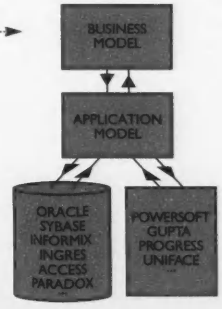

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Committee takes another look at SNMP

By Steve Moore

Like prospective car buyers, SNMP users are kicking the tires this year on a new model — Version 2 — that has just appeared in some networking vendors' showrooms. But behind the scenes, an Internet Engineering Task Force working group already has Simple Network Management Protocol (SNMP) Version 2's hood up and is working to enhance it one more time.

"We don't want to keep tinkering with SNMP," said Bob Stewart, chairman of the SNMP Version 2 working group and a software engineer at Cisco Systems, Inc. in San Jose, Calif. "We want to get past the controversy over the protocol's features and get on with using the features it already has, which have not been well used up to this point," he commented.

"It's more of a tuneup than an overhaul," said Jeff Case, president of SNMP Research, Inc., a software firm in Knoxville, Tenn., and a member of the working group. Specific actions being considered include the following, Case said:

- Making SNMP Version 2's security features easier to use.
- Making minor modifications to the Manager-to-Manager management information base (MIB), which defines how different SNMP management domains communicate with one another.
- Ensuring "peaceable coexistence" of SNMP Version 1 agents and SNMP Version 2 agents.

More information

In addition, Case said, "We talked about some work that would give more feedback to users at a management station when things aren't working." Instead of merely being notified that communications have broken down, he noted, the user should also be given a specific reason for the breakdown.

The proposed changes in SNMP Version 2 are of only academic interest at this point because it will likely be several years before vendors implement them, said John Scoggin, network operations supervisor at Delmarva Power & Light Co. in Newark, Del. Even with the current version of SNMP Version 2, he said, "I haven't seen much in the way of products."

But another user disagreed. "We know these changes are coming, and it's not academic," said Paul Edmunds, a senior information systems analyst at Duke Power Co. in Charlotte, N.C. "We want to see an effective security mechanism and Manager-to-Manager MIB implemented."

"I don't understand why users don't beat up vendors for not giving them what they want," Stewart said, noting that network management platform vendors have been slow to implement the Manager-to-Manager MIB and other features that have been in SNMP for some time. "SNMP was intended to address multivendor interoperability, but the record of actual implementation in that regard hasn't been very good," Stewart added.

Router software designed for branch offices

By Laura DiDio

Novell, Inc. recently released for branch offices the latest version of its MultiProtocol Router software, which now incorporates advanced filtering capabilities and a new facility that helps reduce network overhead.

The new Novell MultiProtocol Router (MPR) Version 3.0 is a set of four NetWare Loadable Modules (NLM) for NetWare 3.x and 4.x servers. The family consists of two basic routing products and two add-on modules for wide-area network and dial-up routing, said Mark de la Vega, internetworking product line manager at Novell's Network Infrastructure Division.

Twice the fun

The number of remote sites linked to corporate headquarters is expected to more than double, from 40% in 1993 to 94% by 1997, according to Infonetics Research, Inc., a market research firm in San Jose, Calif.

The NetWare BranchLink Router 3.0 gives users two dedicated WAN links and unlimited LAN connectivity at full T1/E1 speeds. The NetWare Enterprise Router 3.0 has the same functionality as the BranchLink offering and also supports up to 16 WAN connections.

The two add-on modules are WAN Extensions 3.0, which supports frame relay and X.25 connections, and SNA Extensions 3.0, which enables businesses to route IBM SNA traffic across TCP/IP and IPX backbones and to route IPX, TCP/IP and AppleTalk over SNA backbones, de la Vega said.

Typically, the MPR Version 3.0 routing NLM would support branches with five to 30 users on a single WAN link to a corporate office.

MPR 3.0 has been enhanced to support Novell's next-generation NetWare Link Services Protocol (NLSP), which eliminates protocol overhead. The on-demand routing facility lets users take advantage of lower-cost phone rates.

John Calvin, senior network analyst at The Network Therapist, Inc., a service organization in Toronto, said the enhancements to MPR 3.0 made a tangible difference in his network's routing performance. "The IPX routing upgrade and NLSP are great improvements. And the ability to perform such tasks as load balancing between network interface cards and select a preferred route is a big advantage," he said.

The NetWare BranchLink Router 3.0 lists for $995, and the NetWare Enterprise Router 3.0 costs $2,495. WAN Extensions 3.0 and SNA Extensions 3.0 are priced at $495 each. All of the MPR 3.0 NLMs are shipping now.

Stanford

CONTINUED FROM PAGE 53

15 miles, but intervening objects such as trees and buildings give it a practical range of a quarter mile. Portables act as peered computers on the wireless network and as clients to remote servers on the wired network.

Timothy Wei, assistant dean at the Stanford Graduate School of Business, said his group tried the technology last summer to access Novell, Inc. servers from Apple PowerBooks but has not used it since. However, he said, "If the [information technology] organization gives its blessing, we will probably just go ahead and subscribe to it." For now, users' laptop units can be plugged into the campus wired network, he said.

Because Stanford did not pay for the wireless network here, Metricom plans to recoup its investment by selling modems for $495 in the campus bookstore and charging about $20 monthly for service. The beta test is part of Metricom's plan to launch a national wireless network starting with universities and high-tech areas. Other sites include the University of California at Santa Cruz, Microsoft Corp. in Redmond, Wash., Apple in Cupertino, Calif., and Lotus Development Corp. in Cambridge, Mass.

Stanford's *Raman Khanna: Wireless networks can lead to wired networks*

If the beta test goes well, Stanford information systems staffers will write software that knits the wireless network more closely to the campus' 100M bit/sec. Fiber Distributed Data Interface Sunet backbone network, Khanna said. Cisco Systems, Inc. network routers currently connect the Metricom network to Sunet, but Ethernet interfaces will be added later this year, Khanna said.

Early testing turned up a "bursting" problem that caused a lag in transmitting screenfuls of data. "It was a bit too slow, with the data arriving in chunks," said Milt Mallory, a Stanford network specialist.

To boost bandwidth, the wireless network was upgraded from 77K to 100K bit/sec. this fall. Stanford IS managers will keep a close eye on network efficiency as the trial proceeds. "We'll slowly increase the number of users," Mallory said. "We want to make sure we're not overrunning the capacity."

Utility's meter reading

CONTINUED FROM PAGE 53

ting costs are the main goals of the $63 million wireless project. PGW estimates the system will more than pay for itself, saving the company about $13 million annually beginning in 2002. The company projects additional cost savings of $105 million during the next 10 years.

A good chunk of the savings will derive from the fact that the utility will no longer need to enter customers' homes to read meters. Currently, PGW's "can't get in" rate is about 55%. The utility sends estimated bills, which must later be corrected, to these customers.

"With automatic meter reading, virtually all of our billing will be based on actual usage," said Joseph G. Horan, senior vice president and chief operating officer at PGW. "We can begin to realize cost savings, [and] customers will no longer have to be concerned about rearranging their personal schedules to accommodate the meter reader."

But having their meters read has been the least of some PGW customers' concerns in the past few months. At year's end, the company reported a backlog of between 4,000 and 5,000 service orders. Philadelphia Mayor Edward Rendell appointed Phoenix Management Services, Inc., a company specializing in corporate turnarounds, to restructure the utility.

"Information requests are the biggest thing for IS right now," Kuczynski said when asked about the role IS would play in the restructuring. "They want to know who has been waiting the longest [for service] and what we [in IS] can do to turn this around."

PGW's electronic meter-reading project is among several wireless projects now under way in the utility industry, according to Iain Gillott, manager of wireless communications research at Link Resources, Inc. in Framingham, Mass.

Boston Edison Co. and Wisconsin Power & Light Co. are also implementing electronic meter-reading using Metricom, Inc.'s Utilinet network. Other utilities, including Pacific Gas & Electric Co. and Southern California Edison Co., are tapping the Utilinet wireless data network to automate power distribution and voltage control.

The primary advantages of remote meter reading, Gillot said, are lowered costs and improved accuracy.

"When meter readers can't get in, companies need to estimate usage, which means revising the bills later, issuing refunds and a lot of annoyance to customers," he said.

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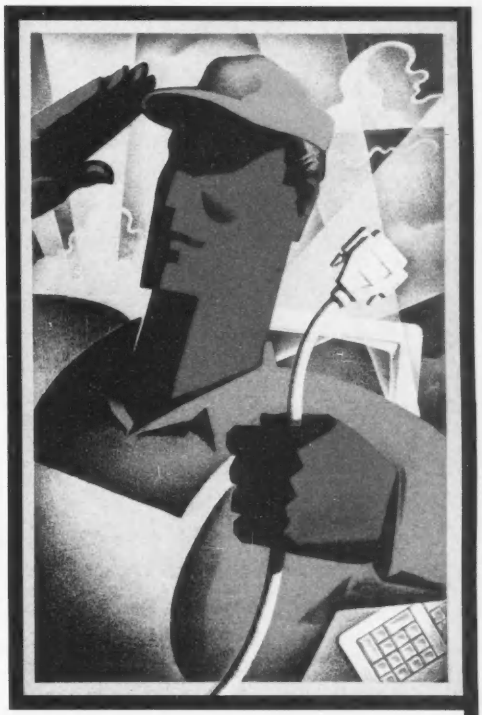

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HR staffs recruit client/server systems

By Rosemary Cafasso

Client/server technology is helping many users reshape human resources into something more effective and vital than just backroom record keeping.

Not long ago, it was common for human resources staffs to request a specific report from the information systems department and then wait days or weeks for it to be delivered. With client/server systems, users say they can now access and analyze data on a timely basis. The real plus is they can deliver information to business managers to help them make decisions about issues such as employee cutbacks, reassignments, benefits or training.

"That was the main thing — access to information," said Troy Albright, director of human resources administration and systems at Manor Care, Inc. The health management company in Silver Spring, Md., recently migrated from an outdated mainframe installation to a client/server system from PeopleSoft, Inc. in Walnut Creek, Calif.

"The level of expertise that was required meant that only about three employees out of 28,000 knew how to get information out of the old system," Albright said.

Other users agreed, adding that client/server ystems are critical because they provide more immediate information.

"We had a system that just aged," said Bob Klumb, a manager in charge of human resources information systems at Bechtel Corp. in San Francisco. The engineering firm is migrating to an Oracle Corp. client/server system.

Bechtel's business is based on worldwide engineering projects, so "the movement of people, the training and the development of people are fairly mission-critical items," Klumb said. Unlike the old system, the Oracle software gives project managers more up-to-date information on employees to staff up and plan for projects.

closer look
HR applications

Although the client/server human resources market is expected to nearly double in worldwide revenue from 1993 to 1995, revenue will still be fairly small; International Data Corp. estimates it will hit $291 million by year's end. In constrast, revenue for the client/server accounting market is expected to grow from $589 million in 1993 to $1.3 billion by the end of 1995.

User assistance

A growing crop of client/server human resources packages is helping users replace old, inflexible and frequently homegrown mainframe-based systems.

Five years ago, the client/server human resources market was wide open when PeopleSoft stepped in. With nearly $75 million in revenue for the first three quarters in 1994, PeopleSoft remains the biggest name in the business. Fourth-quarter results were not available at press time.

PeopleSoft is far from alone. All of the major applications players, including SAP America, Inc., Oracle Corp. and Computer Associates International, Inc., are snatching up pieces of this market.

Plus, there is a regular flow of new entries. Dun & Bradstreet Software in Atlanta just announced in mid-1994 its first human resources client/server modules, and Software 2000, Inc. in Hyannis, Mass., a longtime player in the minicomputer-based human resources software business, is scheduled to ship a client/server module this quarter.

KAREN STOLPER

In addition, users are beefing up those core packages with a host of other client/server technologies. These range from Notes, which can serve as a front-end user database, to application-specific packages such as the resume management system from Restrac in Dedham, Mass.

Another approach is to add technologies such as imaging, kiosk and interactive voice response systems to improve access to human resources operations.

In some cases, companies are changing the human resources staff into an internal consulting group by off-loading administrative tasks to employees. With this tactic, employees can access their own information stored in human resources databases via a user-friendly front end. This trend, which industry observers said is in the early stages, is referred to as self-service or employee-managed human resources.

Good-bye, paperwork

For example, PRC, Inc., a consulting and software development firm in McLean, Va., is using Santa Clara, Calif.-based Edify Corp.'s voice response and agent technology to handle the employee benefit enrollment program and a new employee review program. In both cases, paperwork is replaced by employees and managers entering information into the main system via Touch-Tone telephones. Edify trans-

HR staffs, *page 62*

MICHAEL ABRAMSON

Baxter's Tony Maravola *is managing a human resources self-service program that helps off-load record keeping to employees*

Baxter benefits from overhaul

Tony Maravola, director of human resources information systems at Baxter International, Inc. in Deerfield, Ill., said the company realized it needed to overhaul its human resources department after it listened to some of its managers.

One manager described the human resources group as "speed bumps you have to negotiate around," Maravola said.

The company decided to streamline human resources and create a much smaller group of experts and advisers. This meant the group "was taken out of the loop on many things" and no longer signed off or approved many activities, Maravola said.

To dovetail this effort, the company decided to move to a more self-service approach to employee records. Maravola's staff selected client/server technology from Essense Systems, Inc. in Peabody, Mass., which provides a variety of front-end support — including kiosks, PCs and telephones — for the human resources databases. The Essense system effectively hands over to employees the record management functions that human resources once handled.

Last week, Baxter went live with the system and reported no major glitches. It allows employees to manage various tasks, from changing basic information, such as an employee address, to buying Baxter stock.

The initial re-engineering effort took six months and calls for phasing out more than half of the 500-person human resources staff.

With the streamlining, Baxter has reduced its human resources administrative workload by 80%, Maravola said. Baxter has given the department more consulting responsibilities.

— *Rosemary Cafasso*

CA touts manufacturing system

New package integrates rules-based system with application suite

By Ellis Booker

■ Computer Associates International, Inc. has unveiled an AS/400-based integrated manufacturing system, CA-KBM, which uses a knowledge engine to configure complex, customized orders.

The Islandia, N.Y., software vendor is believed to be among the first to use a rules-based or expert system integrated with a manufacturing suite. Each of the 25 or so functional modules costs $15,000.

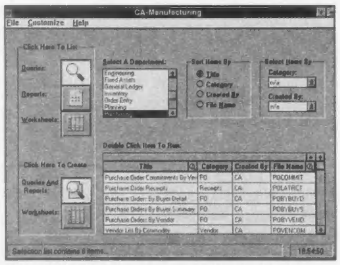
These kinds of systems "will help manufacturers compete against high-volume, low labor-cost companies in the Far East and Eastern Europe," said Gilsela Wilson, an analyst at International Data Corp. in Framingham, Mass.

Generic terms

Rather than describe a custom good in terms of hundreds or thousands of individual part codes, CA-KBM identifies it as a generic item — a window, a door, a can of paint, for example. The generic object then acts as a template that can be modified according to various characteristics, such as color, size or shape.

The knowledge engine inside CA-KBM comes from a module in CIM/400, one of four manufacturing software packages sold by The ASK Group, Inc., which CA acquired last June for $310 million.

"We found this jewel," said David Cahn, CA's director of business applications. Cahn said the knowledge engine will also be brought into CA's other manufacturing packages. He hinted that the engine might be applied to CA's nonmanufacturing products.



CA-KBM *includes a new graphical, client/server decision-support facility*

In fact, ASK licensed the tool from Caradon Peachtree, Inc. in Norcross, Ga., which manufactures residential windows and doors. Caradon was the source of the product configurator and is now a beta user of CA-KBM.

"We have 3,000 for-sale configurations of our double-hung window ... and if you took every variation of that window, you could have 120,000 variations of this one product," explained William Valenta, director of MIS at Caradon. Using generic terms and the knowledge base is a much easier way to handle this inventory, he said.

Work remains

Keith Belton, a senior industry analyst at Benchmarking Partners, Inc. in Cambridge, Mass., said CA's move "validates the knowledge-based approach to manufacturing." Yet Bolton added that CA must still reconcile its disparate manufacturing software lines and choose which will survive and which will be discontinued.

Along with CA-KBM, CA also supports the CA-CAS line for mainframe and Unix platforms, CA-PRMS for the AS/400, and CA-MANMAN/X for open Unix environments. In addition, it supports Manman, which runs on Hewlett-Packard Co. HP 3000 and Digital Equipment Corp. VMS platforms. In total, the company claims that it has some 10,000 customers for its manufacturing software.

Baan flexes its muscle

On the heels of major contract wins in North America, Baan International, Inc., one of the fastest growing makers of integrated client/server-based manufacturing tools, ended 1994 by allying with systems integration giant Cap Gemini Sogeti. Cap will provide implementation, technical support and training to Baan's customers.

The relationship with Cap Gemini is the latest worldwide alliance for Baan. Last October, the Menlo Park, Calif., company announced a similar strategic relationship with management consulting firm KPMG Peat Marwick. And in November, Baan announced a strategic partnership with Bain, a maker of visual product management tools.

Bruce Richardson, vice president of research at Advanced Manufacturing Research, Inc. in Boston, said Baan's strategy is driven by its desire to concentrate on software and its practical need to handle a growing work volume.

In late August, Baan USA won a $20 million order from the Boeing Commercial Airplane Group — making it possibly the largest client/server manufacturing software contract ever signed, according to Advanced Manufacturing Research. This was followed by a multimillion-dollar deal with Northern Telecom Ltd. in November to supply a system spanning 4,000 users over 125 sites in 40 countries.

— Ellis Booker

Hyatt reserves space for Sequent

By Mark Halper

Hyatt Hotels Corp. is changing reservations.

The international hotel chain is replacing its aging Pyramid Technology, Inc. multiprocessing Unix platform that supports central information systems — including the company's Spirit reservation system — with gear from Pyramid rival Sequent Computer Systems, Inc. in Beaverton, Ore.

John Biggs, chief information officer at Hyatt's IS subsidiary, Regency Systems Solutions, said the company evaluated the latest hardware from Pyramid and Sequent as well as Hewlett-Packard Co.'s largest Unix system, the HP 9000 Model T500. Pyramid and Sequent performed comparably, while the HP system had difficulty scaling, Biggs said.

In the end, Hyatt chose Sequent's Pentium-based Symmetry 5000 over Pyramid's MIPS R4400-based Nile box because Sequent demonstrated a "more aggressive" sales posture, Biggs said.

Although Hyatt hopes to complete the migration — including moving an Informix Corp. database — by April, he noted that the hotel chain has reached two milestones but has four left to go.

Sequent's win comes as it steps up its effort to penetrate the lodging industry, where Pyramid has had a stronghold.

"This is a successful niche for Pyramid, and I think you'll see Sequent going after this business hard," said Bill Nicholson, executive vice president of The Hotel Industry Switch Co. (THISCO), a Pyramid site based in Dallas.

THISCO, which routes lodging reservations requests from airline travelers to hotels, recently completed its own Sequent/Pyramid evaluation. It decided to stick with Pyramid and plans to upgrade to the company's Nile multiprocessing system to replace two 5-year-old Pyramid machines, Nicholson said.

IS executives in the hotel and motel trade said Hyatt's decision to go with Sequent was motivated in part by Hyatt's push into the reservation systems outsourcing business, which Regency Systems is spearheading.

Hyatt wanted to distance itself from Pyramid because one of Hyatt's major reservation outsourcing competitors, Phoenix-based Anasazi, Inc., operates on Pyramid hardware and also licenses reservation software to Pyramid shops.

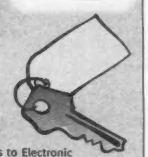
"I think Hyatt looks at this as a differentiation point — they're not running Pyramid and that differentiates them," said Doug Patterson, senior vice president of reservations at Pyramid user Hospitality Franchise Systems, Inc. (HFS) in Parsipanny, N.J.

HFS processes reservations for its six chains on Pyramid E series boxes and is upgrading to Pyramid's Nile, Patterson said.

Making reservations

A sampling of hotel and motel players and their central reservation platforms

Hotel/Motel	Hardware
Hyatt	Replacing Pyramid with Sequent
Sheraton	Amdahl
Rescom (outsourcer aligned with Holiday Inn, Renaissance, Park Plaza)	IBM RS/6000 and 3090
Forte Hotels (Travelodge)	Pyramid
The Promus Cos. (Embassy Suites, Hampton Inn, Homewood Suites)	Pyramid
HFS (Days Inn, Super 8, Ramada, Howard Johnson, Park Inn, Villager Inn)	Pyramid*
Choice Hotel	Pyramid



* HFS outsources its Pyramid operations to Electronic Data Systems

HR staffs

CONTINUED FROM PAGE 61

lates data from the telephone format into human resources databases.

Now human resources staffers can concentrate on more meaningful tasks, such as adding and managing more benefits options, instead of only handling forms, said Sharon Bohlman, director of benefits at PRC.

"I think it's the competition that is forcing corporations to take stock in what is helping corporate success," added Clare Gillan, an analyst at International Data Corp. in Framingham, Mass. "Companies are expecting all functions, from accounting to [human resources], to pull their own weight and help out."

Despite the improvements in human resources' productivity through client/server software, the department "will never be recognized as really mission-critical," said Bobby Cameron, an analyst at Forrester Research, Inc. in Cambridge, Mass. "It gets hacked first in downsizing. They never get any respect — and I think that's just life."

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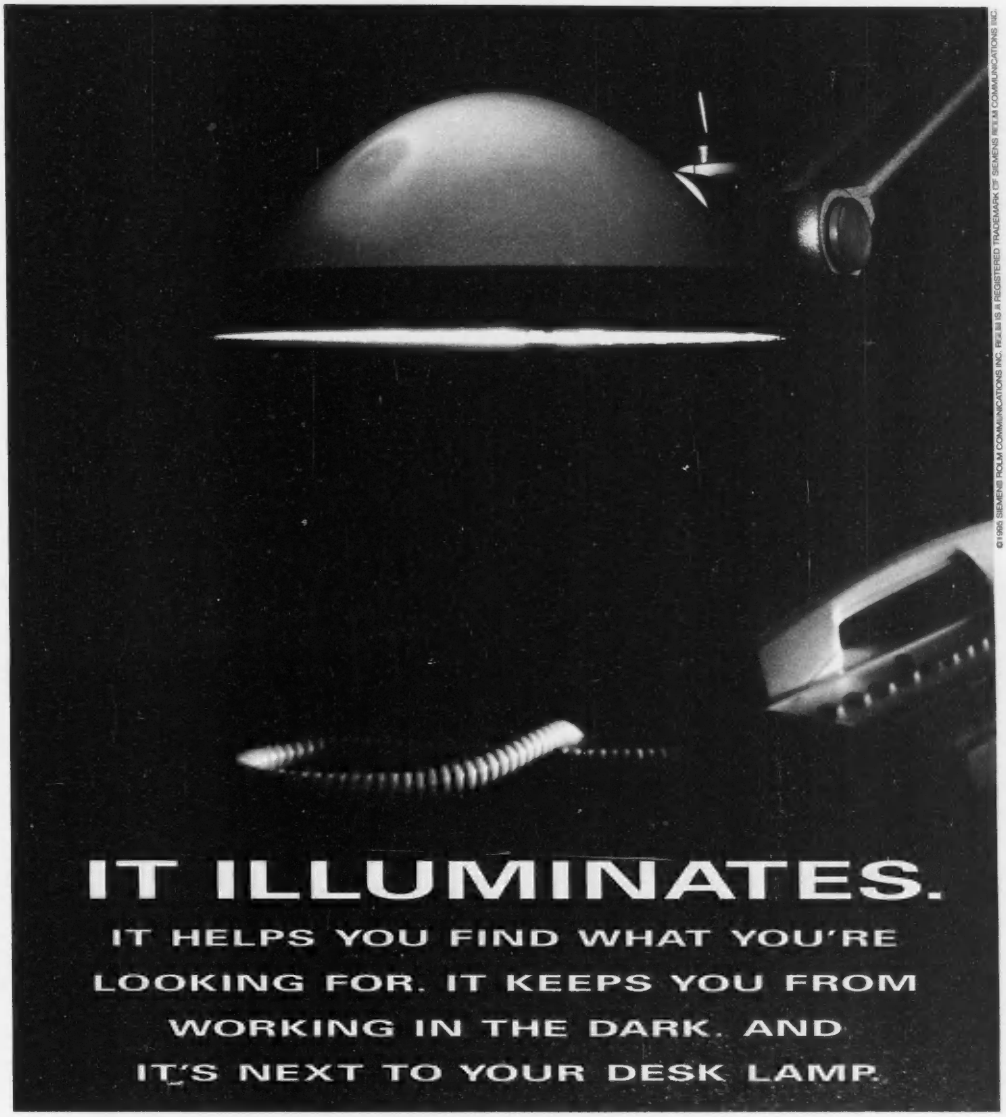

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Computerworld Editorial Calendar

January - March, 1995

Issue Dates	Ad Closings Color*	Ad Closings B&W	Editorial Features & Custom Publications	Show Distribution & Ad Readership Study Issues	
Dec. 26-Jan. 2	Dec. 9	Dec. 16	**Annual Forecast Issue:** A look at key issues and trends that will impact IS Professionals in 1995.		
Jan. 9	Dec. 23	Dec. 30	**CW Guide To: Color Printers** Choosing the right printer: With numerous printing technologies (dye sublimation, thermal-wax, color laser and ink-jet) available today, what kind of printer best fits the needs and budgets of business users on LANs and corporate systems? How do you cost justify the move to color? **Buyers' Satisfaction Scorecard:** Color printers for large organizations from market-leading manufacturers. **Firing Line:** A color printer offering the latest technology such as dye sublimation or best alternative.		
Jan. 16	Dec. 30	Jan. 6	**Closer Look:** Client/Server Human Resource Applications		Starch Study
Jan. 23	Jan. 6	Jan. 13	**CW Guide To: Enterprise Network Management** How much can you manage?: How far have the leading enterprise network management platforms progressed in supporting the diverse platforms and functions needed by users on LANs and WANs across the organization? **Buyers' Satisfaction Scorecard:** Dominant network management platforms from major vendors **Firing Line:** The latest most feature-rich enterprise network management alternative.	**ComNet** Washington D.C. 1/23 - 1/26	
Jan. 30	Jan. 13	Jan. 20	**CW Guide To: RAID Storage Devices** Large systems RAID, where does it fit in? With new RAID systems on the market packing incredible amounts of storage capacity in shrinking footprint space, the choices are better than ever. Should your DASD be replaced with RAID or should RAID be an adjunct to your current investment? **Buyers' Satisfaction Scorecard:** The market leading large systems RAID products. **Firing Line:** The latest RAID system for enterprise users.		
Feb. 1	Dec. 7		**Computerworld Client/Server Journal** **Vertical Market Focus:** Banking **Section Feature:** Product Focus on Networking	Software Developers' Conference Networks Expo UniForum Object World Interop + Networld	Harvey Study
Feb. 6	Jan. 20	Jan. 27	**Special Quarterly Report:** Re-engineering the Workplace		
Feb. 13	Jan. 27	Feb. 3	**CW Guide To: PC Communications Software** Making connections: What are the pros and cons of various methods and products that provide remote access links to LANs and servers? How do they deal with security and reliability issues? What are the most cost effective methods? **Buyers' Satisfaction Scorecard:** Market-leading PC remote access software packages. **Firing Line:** Latest remote access software for server connections.	**Software Developers' Conference,** San Francisco 2/13 - 2/17 **Networks Expo,** Boston 2/14 - 2/16	
Feb. 20	Feb. 3	Feb. 10	**Closer Look:** Videoconferencing		
Feb. 27	Feb. 10	Feb. 17	**CW Guide To: Notebook Computers** The price of portability? Users are most concerned about the key features of portability – notebook size, weight and battery life. Which vendors offer the best portability, reliability and support. **Buyers' Satisfaction Scorecard:** Notebooks from the top vendors based on market strength, reliability & support. **Firing Line:** Latest multimedia-enabled notebook from a leading vendor **Custom Publication:** Manufacturing White Paper: Defining Enterprise Resources Planning (part 1 of 4-part Manufacturing Series)		Starch Study
March 6	Feb. 17	Feb. 24	**Closer Look:** Enterprise Software Distribution Tools **Custom Publication:** White Paper on Object Technology		
March 13	Feb. 24	March 3	**CW Guide To: RISC Servers** Server Strategies: Short-term server purchases may be a matter of price/performance, but which systems make the most sense as long-term strategic platforms? Should users target different servers for every application or standardize on the best alternative? **Buyers' Satisfaction Scorecard:** Market leading RISC servers. **Firing Line:** Latest RISC server from a top vendor. **Custom Publication:** White Paper on Enterprise Application Development (part 1 of 4-part Enterprise Software Directions Series)	**UniForum** Dallas 3/14 - 3/16	Starch Study
March 20	March 3	March 10	**Closer Look:** Object-oriented Development Tools	**Object World** Boston 3/20 - 3/23	
March 27	March 10	March 17	**CW Guide To: LAN Management** Vendors continue to add more sophisticated management capabilities to their peer-to-peer LAN management packages. How well do they address performance, security and tracking issues. How do these packages fit under the companywide network management umbrella? **Buyers' Satisfaction Scorecard:** Market-leading peer-to-peer LAN management packages. **Firing Line:** The latest software to consolidate LAN management for the organization.	**Interop + Networld** Las Vegas 3/28 - 3/30	

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Computerworld Editorial Calendar

April - June, 1995

Issue Dates	Ad Closings Color*	Ad Closings B&W	Editorial Features & Custom Publications	Show Distribution & Ad Readership Study Issues
April 1	Feb. 8		**Computerworld Client/Server Journal** **Vertical Market Focus:** Health Care **Section Feature:** Product Focus on Databases	AIIM Comdex Spring/ Windows World SIM Spring Conference DB Expo Harvey Study
April 3	March 17	March 24	**Closer Look:** PC Spreadsheets **Custom Publication:** Windows World Open Supplement	
April 10	March 24	March 31	**CW Guide To: Document Management** Imaging and e-mail packages offer varying approaches to document management. Which approach is the most cost-effective and best fits your company's needs? How easily can documents be moved across platforms and applications? **Buyers' Satisfaction Scorecard:** Image processing packages for document mgmt. from the leading vendors. **Firing Line:** Evaluation of latest software conforming to new open document standards.	**AIIM** San Francisco 4/11 - 4/13
April 17	March 31	April 7	**Closer Look:** IBM AS/400	Starch Study
April 24	April 7	April 14	**CW Guide To: 32-BIT Operating Systems** Preparing your organization for 32-bit operating systems: How well do the leading products support enterprise requirements such as reliability, technical support and standards in their present and future products and strategies? **Buyers' Satisfaction Scorecard:** Operating system face-off: 32-bit systems. **Firing Line:** Latest 32-bit operating system for corporate users.	**Comdex Spring/ Windows World** Atlanta 4/24 - 4/27
May 1	April 14	April 21	**IS Management Special:** CEO Survey CEOs evaluate the role of technology in their companies and their relationship with IS. **Special Quarterly Report:** Re-engineering the Workplace	**SIM Spring Conference**, Phoenix 5/1 - 5/3 **DB Expo**, San Francisco 5/1 - 5/5 **Executive Technology Summit** Phoenix 5/3 - 5/5
May 8	April 21	April 28	**CW Guide To: Systems Integration** Which systems integrators can best provide support for client/server projects? What guidelines should be used to evaluate them? How should the decision be made? **Buyers' Satisfaction Scorecard:** User satisfaction ratings of top systems integrators with client/server capability. **Firing Line:** Spotlight on major client/server systems integration project involving one or more leading vendors.	Starch Study
May 15	April 28	May 5	**Closer Look:** On-line Information Services	
May 22	May 5	May 12	**CW Guide To: Database Development Tools** With database tools coming from multiple directions (database vendors, application builders, and middleware makers), which tool set makes the most sense for your environment? Is a "best of breed" approach feasible and cost effective? **Buyers' Satisfaction Scorecard:** The market leading database development tools. **Firing Line:** High profile hot new development tool.	
May 29	May 12	May 19	**Closer Look:** Windows Utilities	
June 1	April 12		**Computerworld Client/Server Journal** **Vertical Market Focus:** Retail **Section Feature:** Product Focus on Development Tools	Mobile World Int'l DB2 Users Group Client/Server World PC Expo Harvey Study
June 5	May 19	May 26	**CW Guide To: Application Suites** Software suites that give you three, four or five integrated applications are to "suite" to pass on when individual packages add up to much higher prices. But there are some difficulties in administering suites on a network and meeting individual user preferences. How do you balance a suite strategy with a desire for "best of breed" applications? **Buyers' Satisfaction Scorecard:** Application suites for the enterprise from leading vendors. **Firing Line:** Evaluation of latest application suite as part of an enterprise implementation. **Custom Publication:** Manufacturing White Paper: Supply-chain Management (part 2 of 4-part Manufacturing Series)	**Mobile World** Dallas 6/6 - 6/8
June 12	May 26	June 2	**Closer Look:** Wireless Local Area Networks **Custom Publication:** White Paper Enterprise Systems & Network Management (part 2 of 4-part Enterprise Software Directions Series)	**Int'l DB2 Users Group** Orlando, FL 6/11 - 6/15 **Client/Server World**, Boston 6/13 - 6/15 Starch Study
June 19	June 2	June 9	**CW Guide To: PC Servers** How can your organization benefit from PC-based servers? Can PC servers deliver the same reliability and price/performance as RISC-based systems? What are the risks involved? **Buyers' Satisfaction Scorecard:** Market leading Intel-based PC servers. **Firing Line:** The latest PowerPC-based server or best alternative.	**PC Expo** New York City 6/20 - 6/22
June 26	June 9	June 16	**IS Management Special**	

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Oracle set to unveil Workgroup/2000

By Kim S. Nash

After several months of hints and sneak peeks, Oracle Corp. plans to unveil formally tomorrow a series of PC-based development tools and databases.

The set, called Workgroup/2000, is an attempt to fight Microsoft Corp.'s low-end, low-priced databases and tools, Oracle officials said last week. Although Oracle offers strong database technology, breaking into the indirect market requires a fast-footedness that may be tough for Redwood City, Calif.-based Oracle, according to users and analysts.

Indeed, Oracle has touted the Project X object-based development tool since last September as a Visual Basic killer. However, the product will not ship until March or April — three to four months later than originally planned, according to a delivery schedule Oracle outlined last week.

Overall, Oracle is in for a lot work if it wants to best Microsoft at the desktop, said David Benhaim, an analyst at First Albany Corp., a brokerage firm in Boston. Personal Oracle 7, which is part of Workgroup/2000, "is a good low-end database," Benhaim said. But the company must quickly make friends with resellers, independent software vendors and other third-party channels "to play Microsoft's game," he explained.

Workgroup/2000 contains both new products and newly reduced prices and features for workgroup databases that were first introduced last April (see chart). The family consists of the following three primary product areas:

- **Low-end databases.** Personal Oracle 7 is Oracle's first single-user PC database; Workgroup Server is a preconfigured Oracle 7.1 database intended for groups of 25 to 50 users. The first version of Workgroup Server was based on Oracle 7.0 and did not include parallel features such as backup and restore.
- **Management aids.** Graphical utilities for tracking and troubleshooting database activities [CW, Dec. 19, 1994].
- **Development tools.** Formerly code-named Project X, Oracle Power Objects uses the Basic language and supports Microsoft's Object Linking and Embedding 2.0. Oracle Objects is middleware that connects desktop applications to high-end Oracle servers.

What, when and how much?

Personal Oracle 7	•Available this month on Windows 3.1; second quarter on Power Macintosh. •$199 until June; $495 thereafter
Workgroup Server	•Available this month on Windows NT and NetWare; next month on OS/2; mid-1995 on Power Macintosh, SCO Unix and others. •$299, plus $199 for each client
Enterprise Workgroup Server	•Available next month on Windows NT and NetWare; March on OS/2. •$550 per user

To grease the sales skids, Oracle has opened an electronic store at World-Wide Web site http://www.oracle.com where on-line users can download Workgroup/2000 products for free. Although the vendor suggests users try products for 90 days, then buy them or bag them, Oracle has not created any time bombs or other means to enforce the rule, said Nimish Mehta, vice president of Oracle's desktop products group.

"If we don't get to the point that we trust these developers and users, as opposed to trying to suck them for every dollar we can, this thing's not going to work," Mehta explained.

Oracle aims to increase sales through indirect channels from 22% of total revenue this year to 33% next year. Electronic commerce will be "an important part" of the effort but will not supplant traditional third parties, he said.

Technologically, Power Objects and Oracle Objects graphical development tools will be giant steps forward for users accustomed to the character-based and resource-hungry utilities in Oracle's Cooperative Development Environment (CDE) line, said Judith Hurwitz, president of Hurwitz Consulting Group, Inc. in Watertown, Mass.

But the fact that Power Objects is not integrated with Oracle's other tools and databases "is a mistake" because migrating applications built with one tool or the other will be difficult, Hurwitz said.

CDE and Power Objects were designed and built by separate development groups at Oracle. Further, some overlapping features between the products may confuse users trying to decide which tool to buy, Hurwitz said.

Nevertheless, Power Objects offers Oracle users an object-based tool for low-end development that they could not previously get from Oracle, said Rich Finkelstein, an analyst at Performance Computing, Inc. in Chicago.

Sybase, Inc.'s recently proposed $900 million acquisition of Powersoft Corp. — a development tool leader — raised questions about continued support for Powersoft/Oracle sites, Finkelstein said.

Approximately 30% of Powersoft's 100,000-user installed base runs Oracle servers. Sybase, a key Oracle rival, has vowed to keep Powersoft's PowerBuilder tools database-independent and to assume all of Powersoft's support commitments if the deal is approved by federal agencies next month as scheduled.

Nevertheless, more choices from Oracle, including Power Objects, CDE or some combination of the two, are "important in these changing times," Finkelstein said.

Mitch Betts

Records managers play key role

Imagine the panic attack at your company if it got a whopping subpoena like this one.

Last June, the Food and Drug Administration (FDA) issued subpoenas to at least 100 hospitals, asking for detailed information on all medical procedures performed from April 1984 through March 1994 involving medical devices not approved by the FDA. The FDA also wanted information about approved devices used for unapproved purposes.

Could your systems do the job? Could you find a particular record with specific characteristics from April 1984?

This is more than a rhetorical question because almost every week some large corporation is hammered by lawyers

Betts, *page 68*

New Adabas release in the works

By Craig Stedman

At long last, Software AG is getting ready to give customers some good reasons to stick with its Adabas mainframe database. But it also is looking to make it easier to mix the Unix version of Adabas into mainframe shops that are offloading some of their application development and processing workloads.

Software AG plans next summer to ship the first major new release of mainframe Adabas in seven years. Included in Version 6 will be a number of advanced features that users have been waiting for, such as stored procedures, referential integrity and support for larger tables (see chart).

In the months following, the German company said, it will release Version 6 of Unix Adabas. That version is meant to bring the database management utilities in that product up to a level of functionality consistent with what is provided in the mainframe version.

Adabas additions

Version 6 of Adabas for the mainframe will include the following new features:

FEATURE	BENEFIT
Stored procedures with triggers	Reduces network traffic by automatically starting database operations
Referential integrity	Synchronizes updates and deletions across related data tables
Increased table size	Eliminates need to link multiple tables to store large amounts of data
Ability to read tables backward	Speeds up access to data stored at the end of a table

Also shipping

Scheduled to ship along with the new Unix code is a Windows-based application, code-named DBA Workbench, that will enable users to administer different versions of Adabas from a single PC. A firm delivery schedule has not been set, but officials at subsidiary Software AG of North America, Inc. in Reston, Va., say they are aiming to have both products ready this year.

Software AG, *page 68*

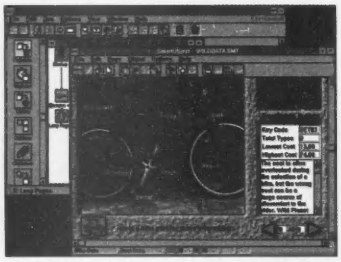
AimTech adds cross-platform support

By Mary Brandel

If you need to develop multimedia applications that run across multiple operating systems, AimTech Corp. in Nashua, N.H., now wears the crown for most environments supported with Release 6.0 of IconAuthor.

With earlier versions of this high-end multimedia authoring tool, developers used a conversion utility to deploy it on Unix, Windows, OS/2 and Macintosh environments.

Now, IconAuthor claims direct file-format compatibility across those systems "except for certain content files," said Larry Concannon, director of product management. Files can be edited on any of these platforms except the Macintosh.



IconAuthor 6.0 *lets users display images from a SQL database*

Cross-platform capability for Windows, OS/2 and Macintosh is easy to come by in multimedia authoring tools, said Matt Chisholm, president of LCD Multimedia Creations, Inc., a multimedia developer in Nashua, N.H. But "if you want to be in Unix as well, you only have two choices — Gain Momentum and IconAuthor," he said.

Microsoft Corp.'s Windows NT will be added early this year, Concannon said.

Although multimedia applications are centered mainly in Macintosh or Windows environments today, "multiplatform support is a critical success factor," said Jack Gold, an analyst at Meta Group, Inc. in Westport, Conn. "Beyond the ability to view the finished application, it's highly appropriate to create the applications on high-power workstations."

A second change to IconAuthor is the ability to access, display, query and update SQL databases via Open Database Connectivity.

"The main thing is the ability to interface to other systems" with or without programming extensions, said Tom Leonard, an analyst at Inteco Corp. in Norwalk, Conn. "That's very valuable in the corporate world."

For example, Gold said, an application could capture how long it takes for someone to complete a training program and enter that data in a human resources database.

IconAuthor competes with about 10 other vendors — most notably MacroMedia, Inc. and Asymetrix Corp. — in a market that Frost & Sullivan in New York estimated to be worth $90 million in 1994.

In the market
The worldwide market for high-end multimedia authoring software was forecast to increase 45.6% in 1994 and 56.2% in 1995, according to Frost & Sullivan.

Users said IconAuthor has seen a lot of growth since its 4.0 release two years ago. Most notable, they said, is the product's object orientation, which separates an application's content from its structure.

IconAuthor 6.0 will cost $4,999, which may appear expensive to some companies. But, Leonard said, "it's not a bad price considering what it gives you," including device support, video display and animation. Hiring outsiders such as graphics professionals to do the work, it would be "easy to burn up $5,000 quickly," he said.

Software AG

CONTINUED FROM PAGE 67

Adabas customers said the promised changes bode well for their continued use of the venerable database, which has been around since 1969. The mainframe plans in particular elicited sighs of relief from users who said they have been lobbying Software AG to put a modern sheen on the software.

Stored procedures and the other features being added in Version 6 "are things we've been looking for and pushing them" to provide, said Greg Dzieweczynski, technical manager for database services at the state of Minnesota's information systems department in St. Paul.

Software AG will give mainframe Adabas support for storing data in object form by 1996, a company official said.

Dzieweczynski, whose department has signed on to be a beta site for Version 6, added that the increase in table size from 16.7 million records to more than 4 billion will be especially useful. The state has to hook multiple tables together to get around the current limit, which is "a cumbersome process," he said.

Evening things out

The plan to make Unix Adabas more functionally equivalent to the mainframe version is also a key step for Software AG, Dzieweczynski said. The Minnesota government plans to move development of its Adabas applications to Unix workstations this quarter, "and I need to have the exact same functionality on both platforms," he said. "I don't want to go down this path and find that I've painted myself into a corner."

Frank Stromboe, director of information services for the city of San Antonio, agreed that increased compatibility between the Unix and MVS versions of Adabas would be encouraging. "Although they look very similar, they're still not the same," Stromboe said. The Unix software, which the city uses as part of its 911 emergency dispatch application, falls short of the mainframe code on both administration and programming tools, he added. Among the features being added to mainframe Adabas in Version 6, support for reading tables of data backward caught Stromboe's attention. San Antonio "came up with some unique ways" to do that on its own, but having it as a standard part of the database would be better, he said.

Software AG could use a little momentum for Adabas, analysts said. The company still has a 7% share of the mainframe database market, according to surveys conducted in 1994 by both Computer Intelligence InfoCorp in Santa Clara, Calif., and Sentry Market Research in Westboro, Mass. But it has not had a very high profile recently, especially in the U.S. market.

"We haven't heard much about them lately, so they have to show some signs of life," said Shaku Atre, president of Atre Associates, Inc., a database consulting firm in Port Chester, N.Y. This year's announcements should be "very helpful" for Software AG's installed base, especially the expansion of the table size supported in mainframe Adabas, she added.

Byron Vranas, director of enterprise systems at Software AG of North America, said Version 6 of the mainframe product should be ready for beta testing in April. General availability is scheduled for August or September, depending on how the beta process goes, he said.

Version 6 of the Unix code will match mainframe Adabas on some utilities, "but not all of them," said Scott Watanabe, development manager for the mainframe version. Software AG has "a number of steps to go" to get the two products completely in sync, he said.

Betts

CONTINUED FROM PAGE 67

or regulators for records the company doesn't have, can't find or wishes it didn't have. Just last month, Kiwi International Airlines was temporarily grounded by a dispute with the Federal Aviation Administration over its pilot training records.

Unfortunately, the corporate employees who could help avoid these information crises — they're called records managers — get less respect than Rodney Dangerfield. They have minuscule budgets, no clout and are hidden away in some corner of the catchall "administrative services" department.

Actually, records managers should be important members of IS design team in order to help the company avoid costly and embarrassing legal problems down the road. Records managers are experts in indexing, retrieval, storage and disposal of paper, microfilm and electronic records. They know how to keep records for as long as the law and business practices require without clogging the information arteries or providing fodder for some plaintiff's attorney.

Records managers get less repect than Rodney Dangerfield.

Sex, lies and computer tape

As Tyrone Butler, president of the Association of Records Managers and Administrators, recently put it: "The two major problems in politics and business today are sex and records management. If the problem isn't about sex, it probably has to do with the records you have or the ones you don't have."

Ideally, there should be a lot of cooperation between IS personnel and records managers. But the brutal fact is that records managers are shut out of the IS process, and the gulf between the two camps is huge. If you doubt that, consider the following statements from an Internet discussion group for records managers:

- "There is a tendency for some MIS folks to surge ahead with their machines and programs . . . regardless of any records management considerations," said a participant from Utah.
- A records manager at a pharmaceutical firm said she had been trying to establish an electronic records management program for two years with little help from IS. "I truly believe they just do not get it! We are coming at this problem from different angles. While I am very willing to look at the issue from their perspective, they have been incredibly stubborn," she said.
- Another records manager chimed in, saying he has a great relationship with IS folks — but only on a personal level. "As far as records and information, nothing is ever shared or spoken even though I am always trying to start something," he said.

What do records managers bring to the table? They can help IS decide what E-mail should be archived and for how long. They can help design a document imaging system that is properly indexed, matches real workflows and is capable of purging unneeded documents, notes Donald S. Skupsky, president of the Information Requirements Clearinghouse in Denver.

Furthermore, records managers know the importance of separating confidential information from information that could be publicly released.

In a perfect world, records management would fall under the umbrella of the CIO. But because CIOs are so computer-centric, that's not the case.

"The CIO title is nonsense," Skupsky asserts, "because the CIO really only manages a small percentage of the company information — the computer data. About 70% of company information is still in paper form. . . . So today's CIO is really just chief officer of 30% of the company information."

Betts is a *Computerworld* senior editor in Washington. His Internet address is mbetts@cw.com.

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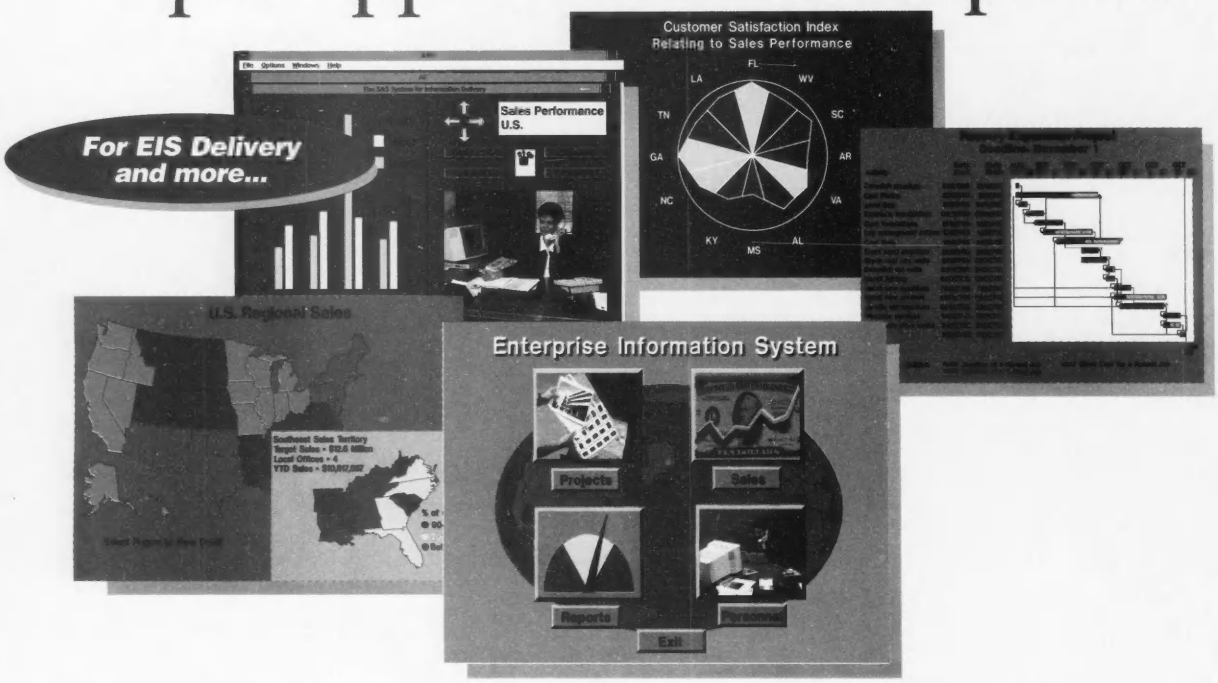

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Too Darn Tight
Page 74

It takes a diplomat to manage IS departments at employee-owned companies. When the staff owns the joint, executives must take care to establish...

▲ David McNicholas, executive vice president of systems marketing and development at Avis

CLAUDIO EDINGER

The Limits of Power

Employee ownership can have dramatic payoffs, with companies boasting sales growth rates 5% to 10% higher than traditionally owned companies. Employment growth is typically 12% to 13% higher.

Source: 1994 study by the state of Washington's Department of Community Development

By Candee Wilde

When information systems workers at Avis, Inc. felt their jobs were threatened by a shift to client/server systems, they were reacting the same way as their peers at other companies. But at the car rental giant, there was one major difference: The employees own the company.

Some IS staffers at Avis assumed ownership meant they could block the move from a mainframe environment, particularly if it might cost jobs. After all, who ever heard of firing the owner of a business? The IS staff assumed wrong. In the end, no IS jobs were lost because of the transition. However, employees did get a lesson in what it means to be an owner — and what it doesn't mean.

"We have had to get the message across that employee ownership doesn't mean we have a socialized work environment," says David McNicholas, executive vice president of systems marketing and development at Avis. "It doesn't mean employees decide the IS budget but rather that they get a direct reward if we're all doing well, and they are part of the team."

One of the biggest challenges at employee-controlled companies is getting employees to understand the limits of their authority. Similar to a member of the British monarchy, you may get to reign, but you will never rule.

In contrast with the associations most of us make between ownership and authority, the reality is that most employee-owned companies are managed like companies with conventional ownership structures. The board of directors and senior executives make decisions, and employees are expected to carry them out.

But experts say managers at most employee-owned companies usually seek a greater degree of participation from workers than their counterparts at other organizations. And granting employees the ability to influence decisions has positive results, according to Richard Callicrate, associate director of the National Center for Employee Ownership (NCEO) in Oakland, Calif.

"We have found that employee ownership combined with employee involvement creates the highest level of productivity in modern business," Callicrate says.

Learning how to define and set limits on that involvement, however, can be a difficult task for both employee/owners and management.

That was the lesson for Avis employees, who purchased the Garden City, N.Y., car rental agency in 1987. With 13,000 employees, Avis is the fifth-largest company in the U.S. principally owned by employees.

One of the biggest challenges of employee ownership is ensuring, through education and communication, that employees understand the difference between owning the company and managing it. IS executives agree that problems can arise when this distinction is not clear.

"We've seen companies where employees have developed a bad attitude" after becoming owners, McNicholas says. "Their attitude toward management seems to be, 'We own the place, and you can go to [hell].'"

The major differences between Avis' IS shop and other companies' is that although ultimate authority still rests with management, employees are encouraged to express their opinions and contribute to the decision-making process. Furthermore, the reasons behind decisions, the company's performance and many other

The limits of power, *page 72*

The limits of power

CONTINUED FROM PAGE 71

issues affecting operations are discussed openly, McNicholas says.

Also, McNicholas says he listens when IS staffers request new tools that will help them do a better job. If an employee can show that the cost of new equipment will be offset by productivity gains, Avis usually buys it.

"Because we are employee-owned and encourage employee participation, it's difficult to say no to these requests," McNicholas says.

Saying no

One company that found it easier to say no to employees is The Braas Co., an industrial products distributor in Eden Prairie, Minn. Managers and employees struggled with the concept for several years after an employee stock option plan (ESOP) was created to buy the company in 1986.

Company President Steve McClintick said executives repeatedly asked themselves, "What is participation? Is it every employees' involvement in every decision?" Ultimately, the answer to the latter question was no, and that rankled some employees.

"There is a distinction that is a little subtle — but one that must be made — between being a manager and being a beneficial owner of the company," McNicholas says.

The situation improved, however, when employees participated in external workshops on employee ownership conducted by professionals familiar with the concept. The weekend workshops, which included employee/owners from other companies, discussed the management of an employee-owned company, how it differs from other companies, the legal structure of an ESOP and the benefits to employees.

This communication between managers and employees has had a significant impact, McClintick says.

"Since then, the passion for the ESOP has gone from a few managers to a larger number of employees," he says. "Some people came back from the workshop as champions of the ESOP. They were on a crusade."

As the company has implemented new IS projects, such as bar coding, scanning and electronic data interchange, employee involvement has been given a high priority. The future users of new technology were given a voice in its development, and the result has been solid acceptance, McClintick says.

"How good is the hardware if the people that are going to use it are resistant?" he asks. "You end up with thousands of dollars and hundreds of labor hours invested in a system that will be ignored or booby-trapped."

Founding principles

The idea that employee/owners would be better workers was a founding concept at Publix Supermarkets in Lakeland, Fla. Publix, which has been owned by employees since it was founded in 1930 as a single grocery store, is the nation's largest employee-controlled company.

All 82,000 employees in the 460-store chain have a vested interest in the success of the company and a voice in how that success will be achieved, says Daniel Risener, vice president of IS.

The company's philosophy "has been that if you are a stakeholder and understand what that means, you may be motivated differently about how to obtain the levels of success that we set our goals for," Risener says.

Projects in the IS department are handled by self-directed work teams, which are appointed by managers. Beyond that, team members are largely left to themselves to implement a given project.

"We empower people to identify their levels of authority, accountability and skills," Risener says. "They are responsible for making their work successful."

Broader issues affecting the work environment are addressed regularly in focus groups and at least every two years in a formal questionnaire called the "Climate Assessment Survey."

These forums allow employees, known as associates, to have regular communication with management and "help management understand things they are dissatisfied with or would like considered for change," Risener says.

This combination of accountability and authority, according to Risener, has contributed to the grocery chain's success.

"We have had to get the message across that employee ownership doesn't mean we have a socialized work environment. It doesn't mean employees decide the IS budget but rather that they get a direct reward if we're all doing well, and they are part of the team. There is a distinction that is a little subtle – but one that must be made – between being a manager and being a beneficial owner of the company."

– **DAVID McNICHOLAS**, executive vice president of systems marketing and development at Avis

But owning the company doesn't guarantee that employees will keep or even want to keep their jobs.

Since becoming an employee-owned company six months ago, UAL Corp., the Chicago-based parent company of United Air Lines, has learned that lesson the hard way.

"We have seen a lot of turnover," says Steve Regulinski, former acting vice president of IS at the company.

As part of the sale agreement that left employees with 53% of the company's stock, workers had to accept pay cuts and make other concessions. They were given shares in exchange for what they gave up.

But some employees, particularly those with highly marketable skills, were not willing to wait for the potential rewards of ownership. IS has been particularly hard hit with resignations since then, as has the finance department. Regulinski says he believes employees in these departments left United because there is a demand for their skills in other industries.

"That's the bad news," Regulinski says. "The good news is people are very excited about the core business. We have harnessed a lot of energy among employees to run and own the airline." On the bright side in IS, the turnover "has created opportunity for those who have stayed. We have a lot of challenging and interesting MIS assignments," he says.

Holding on to employees

Science Applications International Corp., an employee-owned company specializing in systems integration and reengineering, found itself facing IS job loss through downsizing. But Jim Swartz, chief information officer at the San Diego-based company, says he believes the company is more committed to continued employment for its workers than traditional companies.

"We have developed a number of systems to make sure employees are retained over the long haul," Swartz says. In IS, that has meant reassigning some employees to Science Applications' external systems integration and software development or to posts in other parts of the company.

The 16,000 employee/owners of Science Applications are divided into separate profit-and-loss centers. This structure changes frequently and encourages entrepreneurialism, Swartz says, particularly because employees are rewarded based on results.

"Each suborganization is encouraged to grow as fast as it can," Swartz says. "These organizations become larger and spin off new suborganizations."

Still, Swartz says the management of the company is fairly traditional. "Everybody participates in the ownership of the company, but it is not owner-managed," he says.

Two-way communication between management and employees keeps productivity high in the IS department at General Medical Group, a Richmond, Va., employee-owned company that distributes medical and surgical supplies. Nancy Witschey, vice president of the 80-person IS staff, says employees participate in most decisions involving technology and operations.

"Everyone [in management] has an open-door policy," she says. "When we are faced with making decisions in the IS department about software and hardware, we involve the appropriate members of the department.

"We feel strongly that we are a partnership and need the benefit of employee perspective to ensure we make the right decisions," Witschey says.

Michael Keeling, president of the ESOP Association in Washington, summarized the philosophy most IS executives at employee-owned companies have developed: "The management of an [employee-owned company] is extremely dependent upon communication. Communication builds trust, and trust creates teamwork." ■

Wilde is a freelance writer in Easton, Conn.

Making the marriage work

When employees say 'I do' to company ownership, they must make a commitment to their managers for a fruitful relationship. Like any good marriage, trust and open communication are needed to make it work.

THE EMPLOYEES VOW:

- To allow managers to manage.
- To accept limits to their participation.
- To strive for profit, not power.

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- To accept suggestions from the ranks.
- To combine accountability and authority.
- To empower people to identify their own levels of authority, accountability and skills.

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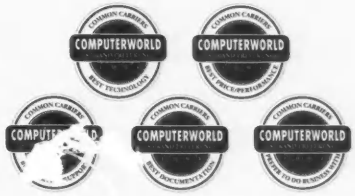

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Too Darn Tight

By Joseph Maglitta

A re-engineering project at Hoescht Celanese nearly came unwound before an inward-looking re-engineering team opened up to outsiders

To an outsider, the new ordering system at Hoescht Celanese Corp.'s polyester unit seems as tightly woven as the huge bales of material the $6.9 billion fiber manufacturer ships to customers around the world.

Yet behind the sophisticated client/server system is a tangled yarn that shows how poor presumptions, politics and fuzzy communications can put even the most technically elegant re-engineering project at risk of unraveling.

Fortunately, the two-year effort survived. Last month, the Somerville, N.J., company finished rolling out a Digital Equipment Corp.-based system to company manufacturing plants in the U.S., Mexico and Canada.

MICHAEL HARRISON

HOESCHT'S FULFILLMENT MANAGER, *Jen Helke, says the key to a successful re-engineering team is communication*

Hoescht (pronounced Herst) officials say the revamped and expanded system has already produced faster and more accurate bulk deliveries. The 45,000-pound bales are used to make clothing, carpets, home furnishings and auto parts.

Ben Levitan, vice president of operations at Cambridge Technology Partners, says such speed is possible because the order commitment system integrates all customer information, including order placement, inventory and shipping. It also features intelligent electronic data interchange and automatic replenishment, he adds. Plus, an interface developed with the Open Software Foundation's Distributed Computing Environment gives representatives a real-time view of production scheduling systems. Perhaps more important, the system also lets Hoescht do just-in-time manufacturing.

But a year ago, things looked far shakier.

When plant controller Jen Helke took a new job as fulfillment manager at Hoescht's polyester unit, her first task was to get a new order commitment process running at the company's Spartanburg, S.C., factory.

Unlike many business managers who must be dragged into re-engineering projects, Helke says she had to fight to get involved. By the time she arrived, the new Digital VAXcluster-based system — which was later converted to Alpha technology — was already in final testing. "I walked in a total stranger," she recalls.

Helke says it was difficult to get answers to what she thought were simple questions. For example, why were certain screens created the way they were? The five re-engineering team members steering the project seemed too busy or uninterested in explaining, she says.

Given the cold shoulder

Re-engineering leader Tolly Pruitt acknowledges that the Charlotte, N.C.-based group did seem closed. "We focused so much on building the re-engineering team that we forgot to build in a way to let newcomers in. When Jen came she was treated as an outsider. She felt frozen out," he says.

Ironically, when the re-engineering team was formed in July 1992, Pruitt said he worried that members were too diverse to work together. Members handpicked by Unit Vice President Tony White and other top executives included a Dutch-born manufacturing analyst, a female financial analyst, a chemical engineer turned salesperson and a minority quality manager with a biology degree. No customer service representative was included, however.

Then there was Pruitt, a group engineering manager in Hoescht's fibers and film operation who describes himself as "a high-strung pioneer." Company experience ranged from five years to Pruitt's 27 years.

Pruitt recalls looking at the group and thinking, "My Lord, what are we going to do?" The plan was to create a team that would oversee the order entry reorganization then disband.

The work was badly needed. The parent corporation had suffered heavy losses in 1993. Thus, Hoescht was beginning widespread corporate reorganization to slash costs and boost competitiveness in the face of growing global competition.

Preparing for battle

The group mobilized on Sept. 1, 1992. To build team spirit, members went on several off-site, Outward Bound-style retreats, where they climbed mountains and ropes together. "We walked a tough walk. It was almost like we were a combat troop," Pruitt recalls.

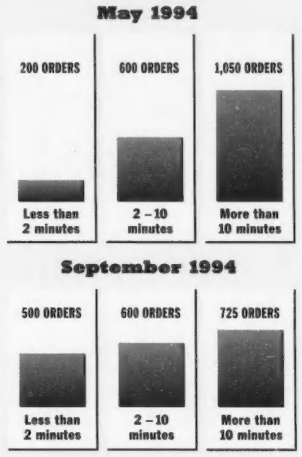
The company also hired Tim Irwin, a consultant at Atlanta-based Irwin-Browning Associates, to do team building. The group talked about ethnic differences, thinking styles and mission statements.

Along the way, information systems manager Dwight Earl joined the effort. Now retired, Earl was to help develop technology underpinnings for the redesign. After interviewing more than 100 workers in order processing, credit, warehousing, manufacturing and sales, an IS road map gradually emerged.

By January 1993, process work was complete. In March of that year, 20 people traveled to Cambridge, Mass., where the actual three-tier system would be built by Cambridge Technology Partners.

All clear

Although Hoescht Celanese's new order entry system is just reaching full production, creators say the time needed to process customer orders continues to decrease



History in their heads

They quickly developed a system to expand and enhance the VAXcluster in Charlotte with Hewlett-Packard Co. 9000 workstations and Windows-based PCs. The aim: to speed up orders, reduce errors and improve huge inventory overstock caused by sales forecasts that were typically 60% accurate.

Enter Helke. The team wanted to forge ahead with the implementation. Helke had questions and was less comfortable doing so. Clashes began.

"I would get questions from the accounting group or sales organizations," Helke says. "They'd say, 'How come you're doing things

Too darn tight, *page 76*

OBJECT WORLD

Putting Objects To Work In The Real World 1995

UPDATE №3

Register for Object World Boston '95. And hear how Xerox puts OT to work.

Recently, we met with Object World session speaker Al Nugent of Xerox Corporation to talk about the impact of object technology (OT) at his company. Mr. Nugent holds the expansive title of Executive Vice President, Application Architecture and Design, Global Process and Information Management, Object Technology Competency Center (OTCC). He's also a member of the Object Management Group's (OMG) Board of Directors. This interview gives you a taste of what you can expect from the in-depth conference sessions at Object World Boston.

That's quite a title. What does it all mean?

"In a nutshell, our charter is to facilitate the adoption of modern software engineering practice using object technology at Xerox Corporation. My team, the OTCC, is responsible for managing the architecture and design of distributed object services that support the rollout of all new globally deployed applications."

How long have you been working with object technology?

"Longer than I like to think. I started using object-oriented languages back in grad school, and my career has evolved around open systems and leading edge software principles and practices. So my experience in software development is based on understanding process, selecting and using the proper abstractions, and focusing on design rather than code. I joined the OMG board in 1989 and have been an active member of the distributed object system community since then."

What changes have you seen as OT has moved into the mainstream?

"Well, the big impact on our work at Xerox is that the scope has expanded to include organizational learning, the impact of technology on corporate culture, reward and recognition for object-based development, high performance team building, collaborative work environments, effective mentoring and training techniques, and transformation of business processes into actionable systems."

How does Xerox put object technology to work?

"First and foremost, Xerox has challenged itself to be business-process driven. Our motivation for using objects is to continue to provide the best products and services to our customers. This is not technology for technology's sake. As a result, we embarked some time ago on a company-wide reengineering drive that resulted in the Xerox Business Architecture. And it's in this context that we're using OT. The object approach gives us the opportunity to analyze and design business processes down to the work flow or task level, then easily translate the products of analysis into application design, development, and deployment."

What led Xerox to adopt object technology?

"The decision to adopt OT was made prior to my arrival at Xerox. Our worldwide CIO, Pat Wallington, and her team created IM2000, a set of key strategies to guide our information management into the next century. Our adoption of OT has been leveraged off the strong tradition of software analysis and design practices within IM and our divisions. Our legacy outsourcing agreement with EDS has provided us with a tremendous opportunity to engineer business processes, integrate technology, and build new global solutions designed to make our business more effective."

What kind of benefits has Xerox realized from employing OT?

"Most of the OT work I've been describing here is now in progress. Some earlier pilot activity inside Xerox has yielded a high degree of reusability for both code and designs, quicker time to market, and a high developer productivity and satisfaction. One side effect of OT is improved communications. OT enables us to discuss the solution to the customers' problems in their own vocabulary."

What will people learn about OT at your Object World sessions?

"The first is an evangelical session highlighting the benefits and realities of OT products and services. The second is a case study of OT adoption and use at Xerox. In the case study session, I'll describe the critical success factors for corporate-wide OT adoption. I'll also provide a real-world, large-company perspective on the benefits and realities of a migration to object technology, and an understanding of the relationship between business process management, object technology, and solutions deployment. My sessions will give them a head start on realizing the benefits of OT for their companies and themselves."

Don't miss Al Nugent and other OT movers and shakers at Object World Boston. No other OT conference offers you a broader range of subjects or greater technical depth. You can choose from 15 tutorials and 54 conference sessions—many are based on actual case studies and feature OT users and industry experts.

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Too Darn Tight

CONTINUED FROM PAGE 74

that way? You're the leader.' I didn't understand how the team made the decisions it did and had no documentation. Team members found it difficult to go back and justify and defend what they had done. So at best, I found it difficult to facilitate implementation."

Ultimately, Helke says, a bigger problem arose. "People did not feel that they owned the system. They felt that they had been given it, that they didn't have any input," she says.

Moreover, Helke says order entry workers — already stressed by moving from Spartanburg to Charlotte and the demands of learning a difficult new system — were also upset with the re-engineering team.

"Someone was always in tears," Helke recalls. "People would see people from Tolly's group and go off in the corner and complain about them. There was extreme tension."

In February 1994, things came to a head. Fifteen people, including the entire order fulfillment group, key customer service representatives, Helke and the re-engineering team, left work early on a Thursday night for a half-day site retreat with Irwin.

"We found a place to let emotions go bonkers. We blew," Helke says. "The issues were out on the table. There were major explosions, tears, accusations, anger, lack of trust — any bad thing you can imagine."

Helke says she found herself in the middle. "The customer service reps were saying to me, 'Why didn't you fix things? Why did you let them do this to us?' I was walking the line between maintaining the dream and recognizing the legitimate complaints and frustrations."

A necessary evil

Unpleasant as it was, the meeting seemed to clear the air. A Myers/Briggs-type personality test showed that customer service representatives took matters personally, for example, while others dealt with problems less emotionally.

The session yielded another insight, according to Helke. "Only then was I beginning to realize how tight Tolly's team was and how they came in thinking people would be taking orders," she acknowledges.

Eventually, the parties worked out a mutually agreeable rollout plan in the meeting. In mid-March, workers started feeding more and more orders into the new system. By early April, the switch was complete.

For the rest of the year, teams from the re-engineering group, business unit and corporate IS, fine-tuned the system by eliminating data communications bugs and speeding database access. The two dozen or so scattered IS workers divided the work.

Corporate staffers in New Jersey helped locate good telecommunications lines to speed response time in Canada. In Spartanburg, IS people focused on setting up workstations and connectivity links. Local technologists in Cell River, N.C., took responsibility for running the database system.

Although the system is running and differences were smoothed, challenges still remain. "Our problems didn't go away overnight," Helke says. "We still have personality conflicts to this day."

Her advice to re-engineering team members, IS support squads and others in similar spots is to spend as much as time talking as you can. ■

Painful lessons

☞ **Get as much user input as humanly possible. It's true for any systems project and quadruply true for re-engineering. Many of Hoescht's problems arose because users and process owners felt left out of the development process.**

☞ **Hire a change management consultant. Sure, you might be able to handle the nightmarish tangle of "soft" issues that accompany a major re-engineering project. But do you really want to? "The management of change is the worst possible barrier to implementation you can possibly imagine," says re-engineering leader Tolly Pruitt. Find an experienced professional to lead you through the fire, he says.**

☞ **Don't neglect after-the-fact recognition. After the rocky trip through implementation, don't forget that small gestures such as dinners out and local travel can keep morale high, says fulfillment manager Jen Helke. "We didn't do enough of this, and we should have," she admits.**

☞ **Don't tinker. "One of the biggest dangers is when the re-engineering team goes away and [you're tempted to say], 'Now we can get rid of them and do it our own way,'" Helke says. Resist the urge to make hasty post-project changes.**

Maglitta is *Computerworld*'s senior editor, corporate strategies. He can be contacted via the Internet at Joem@cw.com.

Calendar

FEB. 12-18

18th Annual Training '95 Conference. Atlanta, Feb. 13-15 — Keynote speakers include author Tom Peters. Conference topics include making the right technology choices for learning and performance development, networking with peers, discovering suppliers and products that will help your organization and transforming workplace performance. Contact: *Training Magazine*, Minneapolis, Minn. (612) 340-4750.

The Data Warehousing Conference: Your Competitive Business Advantage. Orlando, Fla., Feb. 14-16 — Keynote speakers will include Ken Orr, principal of The Ken Orr Institute; John A. Zachman, president of Zachman International; Christopher Erickson, president and chief executive officer of Red Brick Systems. Fee: $995. Contact: DCI, Andover, Mass. (508) 470-3880.

Networking Solutions Networks Expo '95. Boston, Feb. 14-16 — Contact: Bruno Blenheim, Inc., Fort Lee, N.J. (201) 346-1400.

Client/Server Conference and Exposition: Merging Business with Technology. San Jose, Calif., Feb. 15-16 — Features special appearance by Steve P. Jobs and keynotes by William D. Connor, Alan Kay, Michael Schrage, David Barany and Aaron Zornes. Contact: CMP Publications, New York, N.Y. (516)733-6770.

FEB. 19-25

Marketechnics '95. Houston, Feb. 19-21 — Contact: Food Marketing Institute, Washington, D.C. (202) 452-8444.

Business Process & Workflow Conference. Orlando, Fla., Feb. 19-22 — Contact: BIS Strategic Decisions, Norwell, Mass. (800) 874-9980.

Inter Comm '95: Global Communications Congress & Exhibition. Vancouver, British Columbia, Feb. 20-23 — Themes include "Carriers and the New Competition for the Infrastructure," "Corporate Enterprise Information Networks" and "Global Advances in Wireless World Summits." Contact: Inter Comm '95, Vancouver, British Columbia (604) 669-1090.

Orlando Multimedia '95. Kissimmee, Fla., Feb. 22-24 — Contact: Society for Applied Learning Technology, Warrenton, Va. (703) 347-0055.

Transition to the New Computing Environment. San Diego, Feb. 22-24 — Contact: Ashley Pierce, Gartner Group, Inc., Stamford, Conn. (203) 967-6774.

FEB. 26-MARCH 4

SAC '95: 1995 Symposium on Applied Computing. Nashville, Feb. 26-28 — Contact: Jim Hightower, Association for Computing Machinery, Claremont, Calif. (909) 624-8902.

The PC Nightmare Symposium. Orlando, Fla., Feb. 27-March 1 — Topics include upgrades and alterations, disposition, obsolescence, software, maintaining standardization and assessing cost, including support and management. Contact: International Computer Negotiations, Inc., Winter Park, Fla. (407) 740-0700.

Effective Methods to Manage and Control a Work Process. Orlando, Fla., Feb. 27-March 2 — Contact: Quality Assurance Institute, Orlando, Fla. (407) 363-1111.

Engineering Document Management Systems Focus '95. Orlando, Fla., Feb. 27-March 2 — Contact: Kalthoff Group, Cincinnati, Ohio (513) 794-3367.

Bringing the Power of Teamnets to Your Work. Cambridge, Mass., Feb. 28-March 1 — A highly interactive workshop led by Jessica Lipnack and Jeffrey Stamps, authors of *The Age of the Network* and *The TeamNet Factor*. Contact: The Networking Institute, Inc., West Newton, Mass. (617) 965-3340.

Marketing on the Internet: An Intensive Briefing on the Keys to Success and the Roads to Ruin. Boston, March 2-3; New York, March 6-7; and Washington, March 9-10 — Fees: Day 1, "The Technology," $495; Day 2, "The Strategy," $695. Contact: Target Marketing of Santa Barbara, Hayward, Calif. (800) 549-4659.

Workflow: Joining the Islands of Automation. Chicago, March 2-3 — Early registration fee is $1,095; regular registration fee is $1,200. Contact: Delphi Consulting Group, Boston, Mass. (617) 247-1025.

MARCH 5-11

The Sixth Annual Expanded International Help Desk Conference. San Francisco, March 5-8 — Seven conference forums examine key issues including planning, implementing and supporting a help desk or related support service. Contact: Help Desk Institute, Colorado Springs, Colo. (719) 531-5138.

The Workgroup Solutions Conference and Expo. Boston, March 5-8 — A guided tour of groupware, including improved electronic meeting facilitation techniques; maximizing return on investment; global collaboration; groupware for heterogeneous architectures; automating field personnel; developing workflow applications; integrating groupware with legacy systems; and administration and security issues. Contact: David Coleman, GroupWare '95, San Francisco, Calif. (415) 282-9192.

Convex User Group Worldwide Conference. Dallas, March 5-9 — Contact: Mary Kay Havens, Convex Computer Corp., Richardson, Texas (214) 497-4584.

Information Security Managers Symposium XIV. San Diego, March 7-9 — Contact: MIS Training Institute, Framingham, Mass. (508) 879-7999.

MARCH 12-18

15th Annual Use of Clinical Information Systems Conference. Snowbird, Utah, March 12-15 — Contact: Association for Applied Clinical Information Systems, Ann Arbor, Mich. (313) 971-6557.

Uniforum '95. Dallas, March 12-16 — Daily keynotes include Ed McCracken, chief executive officer, Silicon Graphics, Inc.; Robert Frankenberg, CEO, Novell, Inc.; and Bruce Tognazzini, engineer, SunSoft, Inc. Contact: The Interface Group, Needham, Mass. (617) 449-6600.

13th Annual National Conference on Ada Technology. Valley Forge, Pa., March 13-16 — Contact: Rosenberg & Risinger, Culver City, Calif. (310) 397-6338.

MARCH 19-25

FOSE '95: America's Integrated Information Technology Exposition. Washington, March 20-23 — Contact: Reed Exhibition Cos., Silver Spring, Md. (800) 791-3673.

The results may not be pretty, but ingenious IS groups are piecing together integrated

CLIENT/SERVER SYSTEMS MANAGEMENT

any way they can

By Elisabeth Horwitt

ONE FINE DAY at Brigham Young University, a user decided it would be interesting to set up a Microsoft Corp. Windows NT system as a Novell, Inc. NetWare file server on campus. That's when the problems started. When a client system booted up and broadcast the message, "Where is there a NetWare server I can log on to?" the NT system, unburdened by binderies and other administrative overhead, responded faster than all the real NetWare servers.

"He essentially disabled log-on for everyone on campus," recalls Brent Moore, computer specialist at the university's financial services division in Provo, Utah.

Identifying and fixing the problem meant gathering experts from several groups in Brigham Young's client/server management organization and having them thrash out whether the source of the problem was a server, a router, the overall network or an application. Fortunately, the university's support people are all equipped with radios; they zeroed in on the errant NT server and took it off-line, solving the problem in about 10 minutes, Moore says.

The above story illustrates several thorny problems that tend to haunt client/server management organizations:

- Users will be users. They will continue to introduce questionable technologies to the network, even when corporate policy specifically says "Don't."
- If your systems management group isn't located in the same room, it better have cellular phones or beepers. You never know what combination of WAN, LAN, system and application expertise you may need.
- If users and applications extend across multiple LANs,

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CHIP SIMONS

Brigham Young's Brent Moore: Systems management is a shared responsibility — IS handles datacom and routers, and divisions focus on applications and users

Horwitt, a former *Computerworld* senior editor, is a freelance writer in Newton, Mass.

CLIENT/SERVER

CONTINUED FROM PAGE 77

servers and departments, so should management tools and support people. A problem arising on one client or server can wreak havoc all over the network.

"I think everyone struggles with these issues — things are getting more complex all the time," Moore says.

For many corporations, the time is now for putting together at least a first take on an integrated client/server management architecture.

"Like many companies, we are going through a lot of rightsizing and process re-engineering; the people we support want to respond more quickly with technology when the market demands," says Tom East, client/server infrastructure specialist at Shell Oil Co. His unit is charged with planning infrastructure requirements, including systems management, to ensure that the client/server environment is robust enough for applications.

An estimated 20% to 25% of client/server costs are related to networked systems management, according to Gartner Group, Inc. Only 2% of costs are attributed to systems management software; the majority are related to labor and support items such as the help desk and training.

East's group sees mainframe-based systems management as a possible prototype for the client/server environment. "Most of our production systems historically are mainframe-based, and our users have come to expect common systems management functions, such as backup, restore and change management, done for them," he explains.

Indeed, in many companies, LAN administrators are knocking on the door of the glass house, asking information systems managers for advice on how to manage client/server systems effectively, says Fred Joy, a senior research analyst at Meta Group, Inc., a research firm in Westport, Conn.

However, obstacles and booby traps lie in wait for corporate IS departments trying to implement a single cohesive architecture for managing distributed multivendor client/server installations.

While some managers complain of the many gaps in today's client/server offerings, several expressed confidence that they will be able to buy or develop in-house the technical infrastructure for their client/server management strategy — once they figure that strategy out.

That's the right order in which to attack the problem, consultants say.

Pinpointing a strategy helps companies end up with the "best of all possible worlds" in terms of a client/server management architecture, according to Joy. Unfortunately, because of product limitations, most companies end up having to compromise that vision a bit, he adds (see story page 80).

Of course, some companies feel so pressured to put any kind of client/server management in place that they don't have time to hammer out an overall strategy, says Marc Barron, chief technology officer at Risc Management, Inc., a New York systems management consultancy. However, down the road, such firms are likely to regret their hurry, he adds.

For example, one Risc Management client is deploying five enterprise client/server applications beginning in February; all are scheduled for full rollout within a month, Barron says. "They were so opposed to the strategic approach, they wouldn't even let us talk to their application development people about what error codes could be put in applications for proactive management. We were very frustrated; it's like putting on Band-Aids," he says.

Companies such as these have a point, though: Corporate systems managers interviewed report it typically takes 12 to 18 months to develop and implement a

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corporatewide client/server management strategy.

One of the more delicate balances corporation planners must strike is whether their client/server management structure should be centralized or distributed. In most cases, neither extreme turns out to be effective.

Many companies have found out the hard way that mission-critical applications do not fare well in a laissez-faire client/server management environment in which each department is responsible for its LAN and each user for his PC.

United Parcel Service, Inc., for example, had until recently a "chaotically distributed" IS support organization "because someone had to be there to replace a Token Ring card on the fritz, explain new software and be there for training," says Randy Smith, a project manager at the package handler based in Atlanta.

One problem with having no overall set of policies and procedures for these local support arms, Smith says, is that "we had a 'squeaky wheel dispatch' in which the manager who shouted the loudest got his software fixed. This was an incentive to look at field support and make them professional problem solvers."

Under UPS's re-engineered district support centers, a district manager oversees each center, and problems are recorded and prioritized according to preset policies using help desk and trouble-ticketing software from Remedy Corp. in Mountain View, Calif.

However, several support and management organizational issues are still up in the air at UPS. A big one is where to draw the line between where the central IS department's jurisdiction ends and the district support centers' responsibility begins, Smith says.

Right now, a central IS support center handles host applications while district centers handle adds, deletes and user identification changes, including those for mainframe access. "It looks like the dividing line between corporate vs. district management — in terms of network management — is at the router," Smith says.

> "It looks like the dividing line between corporate vs. district management — in terms of network management — is at the router."
> — Randy Smith, UPS

But as the company begins to move into distributed databases and more powerful clients, IS has no answer yet for how to correlate alerts across the different domains of clients, servers, hosts and the network itself, he adds.

Companies that try totally centralized client/server management often end up fomenting revolt — or at least resentment — among users and departmental LAN administrators.

For example, users who have been administering their own machines at Brigham Young's financial services division are resisting the idea of having a central group automatically download software to their machines, Moore says. Unfortunately, allowing users to go on installing their own software greatly increases the possibility that they will pick up a virus and then infect servers when they do an update, he adds.

That issue has yet to be resolved; right now, Moore's group is settling for notifying users when they have a "bad or out-of-date [PC] front end."

Renegade users

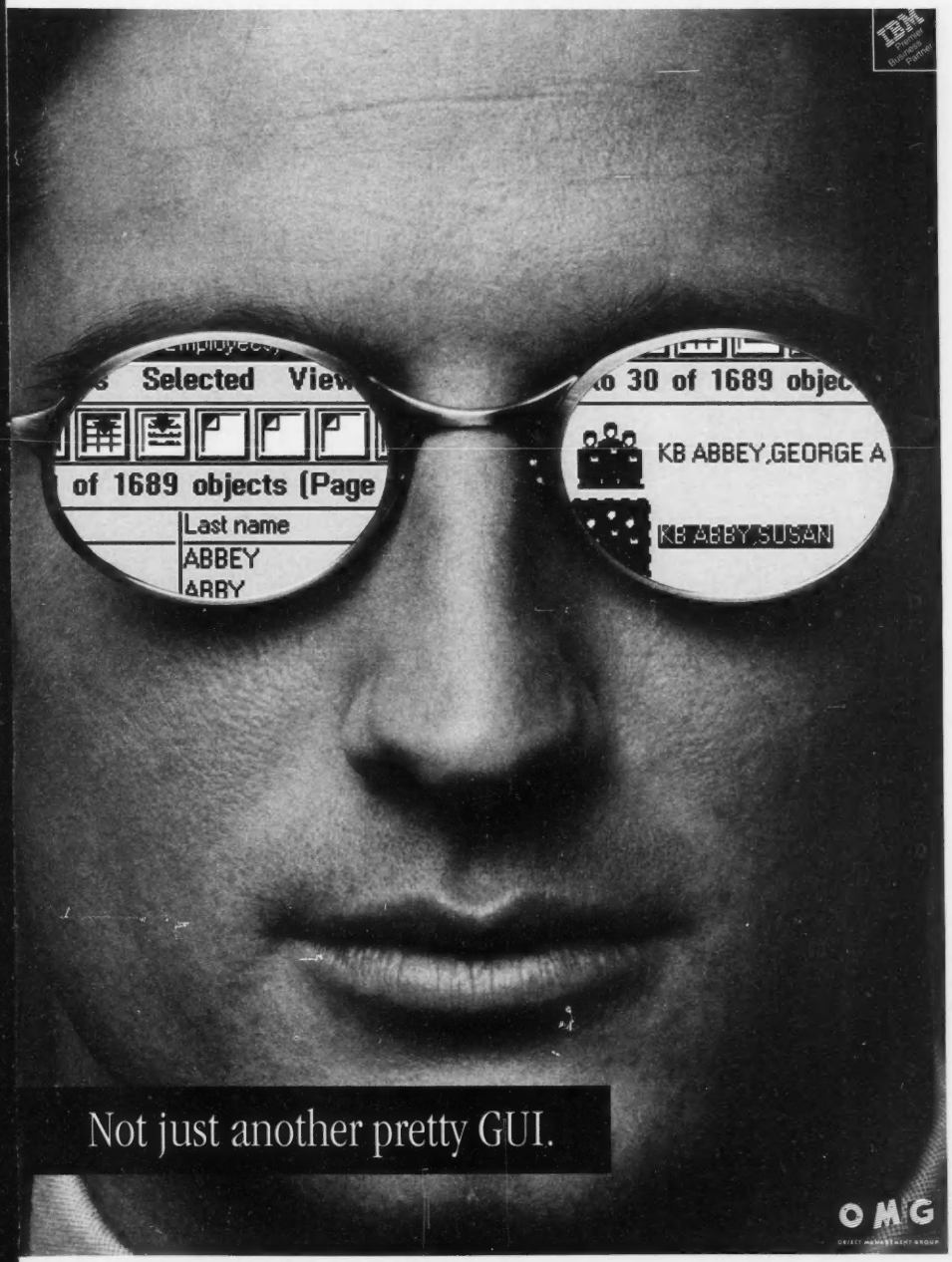
As illustrated in the story about Brigham Young, some users tend to do their own thing no matter what IS tells them. "We try to put policies in place, [such as one] that you don't bring in a feature without testing it in the lab, but people don't always follow policies," Moore points out.

Beyond the question of centralization, however, is the issue of how to divvy up responsibility for all of the various elements in a client/server installation.

Meta Group recommends that companies organize around a functional discipline such as performance management, "rather than have a mainframe-only crew, a Unix crew and so on," Joy says. Cross-pollination between the mainframe and server groups is particularly useful because mainframers are far more accustomed than client/server managers to doing performance, change and backup management on an enterprisewide basis, he explains.

The final systems management struc-

Client/server, *page 80*



CLIENT/SERVER

CONTINUED FROM PAGE 79

ture a corporation comes up with will, to a large extent, reflect the company's own organization and whether it is centralized or decentralized.

At Shell Oil, for example, East's group is charged with finding workable technologies, policies and procedures for client/server management. It will then communicate with — but not dictate to — the oil giant's distributed, and fairly autonomous, business units.

"We want them to understand the business value of systems management and the impact of not doing it" — particularly because the management technology is getting very expensive, and users need to see the cost justification, East says. The choice of implementing any given technology or procedure as well as the extent to which the central information technology will manage an installation is up to the individual unit.

Strength in numbers

In contrast, Standard Life Assurance Co., with about 1,000 centralized and 500 decentralized users, is planning to have its client/server management done entirely by a staff of about eight systems support people, says John Shortall, senior consultant at LGS Group in North York, Ontario, which is working with the Montreal insurance company on the project. The likely exception to this approach is the increasingly automated sales force, which is "all over the map," Shortall says.

Larger companies with complex heterogeneous and distributed client/server installations tend to divide their management staffs into groups, with each responsible for a different user group or type of system or management application.

Cesar Simoes

> "We try to put policies in place, [such as one] that you don't bring in a feature without testing it in the lab — but people don't always follow policies."
>
> —Brent Moore
> Brigham Young University

At Brigham Young, for example, the data communications department is "responsible for everything from one jack in the wall to another" and all the wiring in between, Moore says. Another group is responsible for the routing protocols and router maintenance, while divisions, such as the financial division, are responsible for their own applications and users, he says.

Standard Life plans to have a single help desk to take calls, says Christian Martineau, senior vice president of information technologies. He adds that the group will be trained to handle the full range of client/server management and administration tasks.

However, the specialist vs. generalist issue crops up with help desks, too. Standard Life's front line of support may refer certain queries and problems to a second tier that specializes in mission-critical and complex applications such as a human resources system, Martineau says.

For most companies that set up help desks as a front line for dealing with user problems, the goal is the same: client/server management whose inner workings are invisible to the user.

"Historically, at Shell, we've had a different help desk for PCs and for Unix because the skills are different," East says. "But if we are doing our job right, users won't need to know on which components a given application is running, so they [don't have to worry about] whether to call the Unix or PC help desk when a problem arises." ■

DECISION TIME: CRAFTING A MANAGEMENT STRUCTURE

Many companies face a chicken-and-egg dilemma: which to implement first, the organizational structure or the technology for managing client/server environments?

The ideal, according to Fred Joy, a senior research analyst at Meta Group, is hammering out a management organizational structure and policies and then coming up with the right management platform to support them. Unfortunately, many IS departments are getting strong deadline pressure from upper management to get those competitively hot client/server applications up and running. In such instances, they cannot afford to put off implementing crucial management systems until they have the infrastructure down just right.

Nor can they wait for exactly the right technology. As Joy points out, "Even if you don't have software that automatically schedules backup [from a central management platform], the central point is to get backup attended to; integration is the icing on the cake that will come sooner or later."

What follows are capsule descriptions of two corporations putting in place very different enterprisewide client/server management structures and how their choice of technology reflects those structures.

Standard Life

Corporate organization: Centralized, with a third of users in remote sites.

Support structure: The likely scenario is a centralized help desk group that handles the bulk of user calls and administration across the company, with a possible second tier of support people for specialized needs.

Technological criteria: One central platform that can collect alerts and information about client/server activities and let managers launch management applications from a single, easy-to-use graphical interface.

Products selected: Leaning toward Novell's NetWare Management System (NMS) for NetWare management and software distribution. NMS will send alerts and configuration data to an enterprise management platform. The likely choice is IBM's NetView/AIX, although Hewlett-Packard Co.'s OpenView is also a candidate. The company is also evaluating Landmark System Corp.'s TMON for Unix, Compuware Corp.'s Ecotools and the Unix management applications that run on IBM and HP enterprise platforms for managing its Oracle Corp. databases and Unix servers. Remedy Corp.'s Action Request System will be used for problem management.

United Parcel Service

Corporate organization: Decentralized, fairly autonomous business units.

Support structure: IS support center handles host applications and systems; district support centers handle client/server systems management and user account management; network operations center manages wide-area network through routers. The company is in the discussion phase of providing integrated management across different domains.

Technological criteria: Individual management consoles to provide each district support center with the information and applications it needs to troubleshoot and administer user accounts. Integrated management of network and systems components across sites is under discussion.

Products selected: Novell NMS consoles at each district support center; Software Artistry's Expert Advisor provides a common easy-to-use format for alerts. IBM's NetView manages host systems; NetView/AIX manages IBM 6611 routers. Integration across existing domain management platforms is under discussion.

— Elisabeth Horwitt

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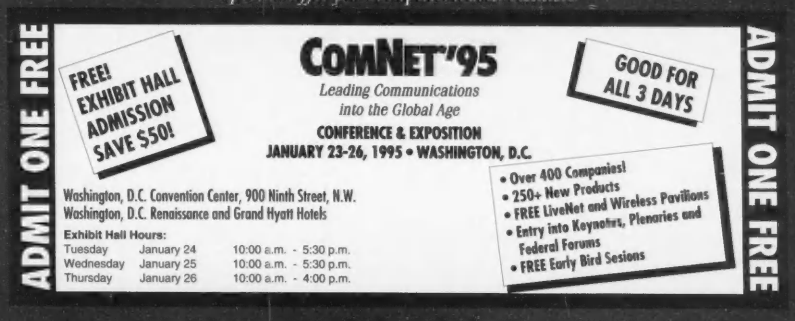

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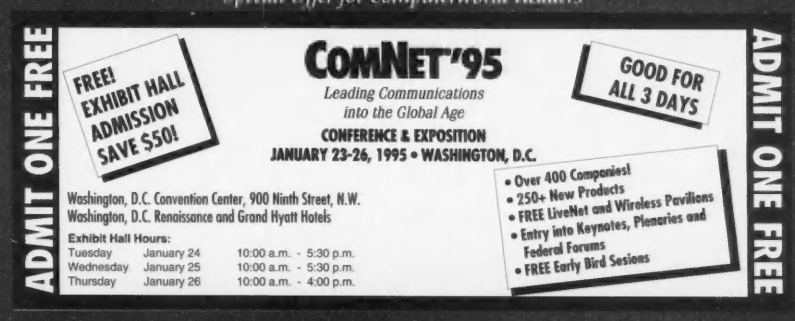

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21. Wholesale/Retail: Non-Computer
22. Other (Specify)_____

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33. Other (specify)_____

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15. Manufacturing: Non-Computer
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17. Publishing/Broadcast/Media
18. Telecommunications: Carrier, BOC, Telco
19. Transportation
20. Utility
21. Wholesale/Retail: Non-Computer
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11. Aerospace
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13. Financial Services: Banking, Insurance, Investment
14. Medical/Healthcare
15. Manufacturing: Non-Computer
16. Military/Government/Defense
17. Publishing/Broadcast/Media
18. Telecommunications: Carrier, BOC, Telco
19. Transportation
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54. Specify
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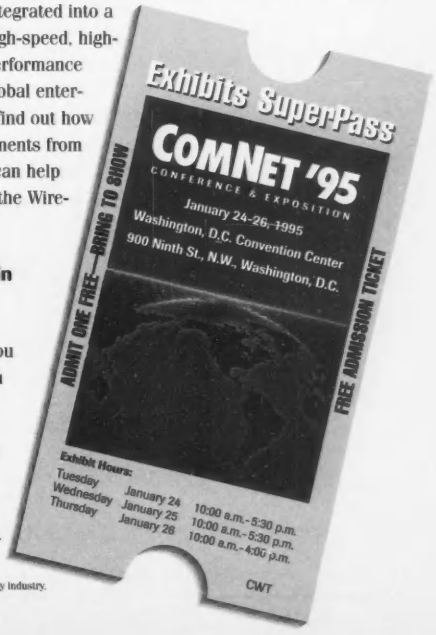

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PLAYING CATCH-UP

New skills are needed in the insurance industry where companies are hiring an estimated 5% to 10% of their IS staff to re-engineer existing systems

BY JULIE HART

If you build it, they will come. At least that's what the insurance industry hopes for as it evaluates the technology and expertise that deliver its products to market.

Take Allstate Insurance Co., for example. The property and casualty firm says it hopes to offer its 25 million customers better service and new products more quickly as it moves to a client/server architecture. "We're going through a massive reinvention process" to reduce the company's product cycle times, says John Klaas, vice president of education and training at Allstate in Northbrook, Ill.

Across the board, the importance of revamping older systems is clear. "When a competitor has a new product out before we do, it represents millions of dollars in [potential revenue loss] per week," Klaas says. "Using technology to cut our [product] cycle time is essential in staying ahead of our competition."

Of course, these new technologies are expected to affect staffing despite cautious implementation. Cutbacks are a harsh reality as insurance agencies become more efficient, yet remaining staff can expect new opportunities, analysts predict.

"We're contributing a significant amount of money to our retraining efforts in two major areas" — business problem-solving and client/server skills, says Mary Hepler, vice president of information and processing services at AAA Michigan in Dearborn.

Hepler says she hopes strong problem-solving skills will help her staff work closely with the leaders of the American Automobile Association's business units to revamp and improve computer operations. Moreover, client/server skills will enable the company to retain some of its legacy systems while improving data access.

"Insurance companies have tens of millions of dollars invested in legacy systems. Rewriting code and throwing it all away doesn't make sense," Hepler says. "Instead, companies are keeping the best of what they have and are making it more readily available to service providers using client/server computing."

This means a major skill overhaul is needed. "A lot of new skills are required in the [insurance] industry," says Thomas Prchal, a partner at Andersen Consulting in Chicago. At one time, insurance information systems staffs slid by with the basics, but the bar's been raised. "Today, they need to know at least half a dozen [technologies] and be proficient at all of them," Prchal says.

Along with newer skills such as C, C++, Unix, Microsoft Corp.'s Visual Basic, IBM's OS/2 and AIX, and relational database technology, Cobol is still considered important as the industry re-engineers mainframe systems.

"Twenty-five years ago, there were no on-line programs — everything was batch. Now the industry needs people that really understand networking and where problems can occur. Troubleshooting is much more complex today," Prchal says.

In addition, he says, industry veterans may remember the good old days of working with an application with only 20 data fields. Today, the number of data fields can hit 200 or more to accommodate dozens of new insurance products and mounting insurance regulations.

Most frequently advertised positions relate to programming or system design, Prchal says. And on average, insurance organizations are hiring 5% to 10% of the IS staff needed to re-engineer the insurance industry. However, loyalty to staff is strong.

"We're not hiring a lot of new people except in certain areas such as object-oriented programming," Klaas says. "That skill is so new and unstable, we just can't train our staff."

Hepler agrees. "Any skills that we may need on a short-term basis, such as data modeling or object-oriented programming, we'll go to the outside for help," she says.

This doesn't mean your job is secure if you're already in the industry. What it does mean is that you'd better have a can-do attitude. "We expect our employees to display self-initiative in learning new skills," Hepler says. ■

Hart is a freelance writer in Sunnyvale, Calif.

Life Insurance

Top IS priorities

1. Link information technology investment to business strategies
2. Improve/enhance/re-engineer current administration system
3. Generate better management information
4. Cost-justify information technology investment
5. Integrate customer information
6. Provide more effective technical support to field
7. Introduce new technologies
8. Replace current administration system
9. Retrain information systems staff on new technologies
10. Introduce rapid application development techniques

SOURCE: Andersen Consulting, Chicago; Life Office Management Association, Inc., Atlanta

Health Insurance

Top strategic technologies

1. Electronic data interchange
2. Client/server networks
3. Intelligent workstations
4. Software re-engineering
5. Imaging
6. Computer-based training
7. Expert systems
8. Computer-aided software engineering tools
9. Smart cards
10. Pen-based computing

SOURCE: Andersen Consulting, Chicago; Life Office Management Association, Inc., Atlanta

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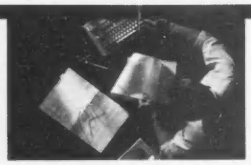

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How Does Your RAISE Measure Up?

Salary increases hit their lowest ebb in nearly 20 years in 1994, but for those who didn't get a raise, 1995 holds more promise

BY CANDEE WILDE

If you received a 4% salary increase in 1994, it's right in line with the national average. With inflation at 2.6%, real gains for most employees were quite small — again.

"[Four percent] was the blanket raise if you were at a competent level," says Jon LaFreniere, a database applications analyst at Mead Corp. in Escanaba, Mich. "Considering the way the economy is in the Midwest, it's fair."

However, not everyone was happy with 4%. "I know the company is doing better this year, so I was surprised that it wasn't more," says Judy Ramser, a programmer/analyst at Milcor Ltd. in Middle Point, Ohio. Although Milcor occasionally gives bonuses, she says, none were handed out. "I would have been satisfied with 5% to 7%," Ramser says.

Companies are expected to continue to hold the line on costs in 1995, according to compensation analysts, who estimate this year's average raise was slightly higher — about 4.1%. But a 1995 inflation rate of about 3.6% will erode most real gains, predicts Charles Peck, a compensation specialist at The Conference Board in New York.

Yet not everyone was disappointed. Information systems employees at ARA Services, Inc., a Philadelphia food and leisure services provider, for example, received base raises of 5%, with higher merit increases. "I've never heard anyone here complain about how much they make," says Scott Maisey, who was promoted from programmer to programmer/analyst in 1994. Maisey received a total increase of 11%, although his company may be something of a rarity.

Brett Hoffman, a systems administrator at Landau Heyman, Inc. in Chicago, says he was also happy with his 8.5% salary increase but adds, "I wish my base was higher so it would have a greater impact."

Gerald Shudy Jr.'s 6% increase at Personnel Decisions, Inc. in Minneapolis reflects a transfer from programming to systems administration, he says, but raises for IS personnel at the company ranged from 3% to 8%.

Last year's data as well as forecasts based on salary budgets for 1995 show little variation in the amount of salary increases for executives (4.2%), salaried exempt employees (4.1%) and salaried nonexempt employees (4%), according to Hewitt Associates LLC, a Lincolnshire, Ill., employee and benefits compensation firm. And raises were consistent in the East, Midwest, South and West, although there are some state-to-state differences. In New York and New Jersey, for example, 1995 pay increases averaged 4.3% vs. 3.7% in the District of Columbia.

Companies prefer bonuses

Research studies sing another tune — a propensity for lump-sum bonuses. Instead of annual base-pay increases, 50% of 1,941 companies surveyed by Hewitt Associates give bonuses. In addition, 60% have instituted results-sharing programs that allow employees to take part in corporate success while protecting fixed costs.

But all's well that ends well. For those who did not receive a raise in 1994, their chances this year are improved. A survey of 1,850 companies by Towers Perrin in Valhalla, N.Y., late last year revealed that 91% of companies plan to give out raises in 1995 — that's 3% more companies than last year. ■

Wilde is a freelance writer in Easton, Conn.

Where you rank

The following are changes in national salaries experienced by a number of IS and non-IS positions. Decreases indicate declines in starting salaries rather than pay cuts for individual positions.

Position	National salary averages 1993	1994	Percentage of change
Senior PC programmer	$39,513	$46,091	14.3
Data processing manager	$62,633	$68,016	7.9
Compensation and benefits manager	$50,892	$54,177	6.1
Customer service representative	$25,650	$27,027	5.1
Accounting manager	$47,950	$50,244	4.6
Entry-level applications programmer	$25,626	$26,762	4.2
Senior applications programmer/analyst	$43,218	$45,141	4.3
Training and development specialist	$33,649	$34,496	2.5
Entry-level applications programmer/analyst	$30,384	$30,805	1.4
Database administrator	$47,210	$47,757	1.1
Accounting clerk	$16,489	$16,526	0.2
Senior applications programmer	$41,599	$41,210	-0.9
PC specialist	$32,411	$32,098	-1.0
LAN administrator	$39,422	$38,153	-3.3
Entry-level systems analyst	$32,049	$30,901	-3.7
Entry-level PC programmer	$28,285	$25,705	-10.0

Base: 550 companies in 1993, 850 companies in 1994. Entry-level positions are defined as those requiring zero to one years of experience; senior positions are defined as those requiring five to eight years of experience.

Source: Reggio and Associates, Inc., New York for the AMS Foundation, Milwaukee

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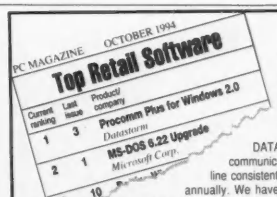

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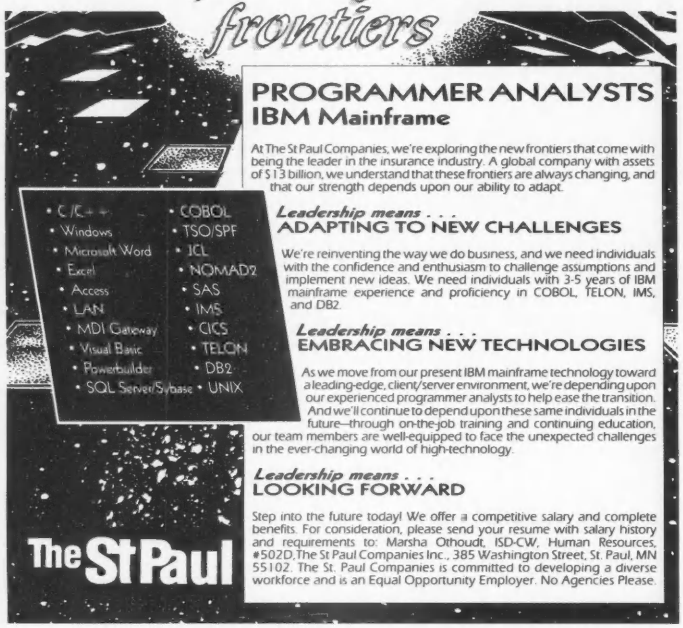

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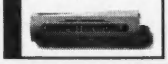

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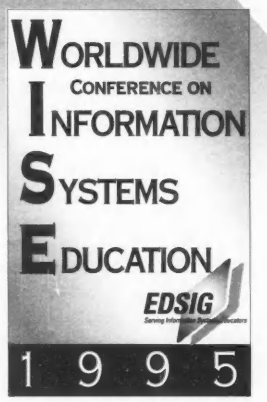

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Bank of Boston awarded IBM a multimillion-dollar contract to handle the procurement, deployment and installation of the components for a major retooling of its banking infrastructure.

Method to madness

GOAL:
To improve sales and customer service and increase the range of products in the bank's branches, such as mutual funds or small business loans.

PLAYERS:
IBM was among the 11 respondents to two RFPs, which were reviewed by more than 20 representatives of various technology and business committees.

RESULTS:
Some 3,000 branches will be outfitted with client/server-based LANs to support both teller and platform (customer service and sales applications), electronic mail, remote software distribution and automated data backup and recovery. The branches' telecommunications infrastructure will also get a face-lift.

LESSONS LEARNED:
Applying project management discipline and techniques to a proposal beforehand results in a more comprehensive RFP.

The Bank of Boston's Kevin Roden, director of consumer banking systems, and George Swick, project manager of retail workstation infrastructure, tell how they developed an all encompassing request for proposal (RFP)

By Leslie Goff

CW: WHAT IS THE FORMAL PROCESS YOU UNDERGO TO APPROVE TECHNOLOGY FUNDING?

RODEN: Our organization looks at technology as a business, so the projects we pick are based on business requirements. Once an initiative [is determined], we create a team to do a feasibility study. We look at available products and do a cost-benefit analysis. We then take [the project proposal] to the technology project committee.

CW: WHAT IS THE ROLE OF THE TECHNOLOGY PROJECT COMMITTEE?

RODEN: It sets technology funding budgets for each business unit based on a variety of factors such as their relative technology status. Another level down are prioritization councils for each business unit. [After the initial analysis], the appropriate council prioritizes a proposed project against other work.

If a project involves examining hardware or software externally, we issue a standard RFP in conjunction with the bank's technology asset management group, which deals with technology contracts.

SWICK: The technology asset management group makes sure we're asking [vendors] the right questions. They administer the process, take in the formal replies, initiate action with regard to the replies, determine the schedule of events and so forth.

CW: WHAT DID YOU LEARN FROM APPLYING THIS PROCESS?

SWICK: That there is value in doing it this way. We need the discipline of defining the project and determining in advance what would be needed to keep it up and running.

Through this process we found it would be more cost-effective to outsource much of the work to a vendor. Based on that, we split the project into halves and developed RFPs for each. The first half was procurement, deployment and installation of the gear. The second was field support and maintenance.

CW: WHO GOT THE BUSINESS?

SWICK: The first half went to IBM. Our people are doing the [application] development, with some backup from [contractors from] IBM and Andersen [Consulting].

The second half has come down to a combination solution. We chose to do some of the network maintenance and support ourselves. IBM will handle field engineering and support and networking problems.

CW: WHY DID YOU CHOOSE A COMBINATION MAINTENANCE SOLUTION?

SWICK: [IBM's] proposal for field engineering was more cost advantageous than ours, but our proposal for centralized network management was better. We wanted to develop the remote network management capability.

The cost of network management is often underestimated because of the amount of training and skill it takes to use the tools properly. We found we could do it as cost effectively ourselves. We're focusing on staffing a Technology Service Center that will support a number of groups, retail banking among them.

CW: WHAT DID THE DEPLOYMENT RFP SPECIFY?

RODEN: We chose the bulk of the hardware and software before IBM got involved. We chose the tool the solution would be built in [BankPro and BankPro Teller from Argo Data Systems], and then we focused on the infrastructure — how we would procure and roll that out.

A major part of the project is to upgrade the telecom infrastructure to speed communications between the branches and corporate. We're increasing line speeds from between 4.8K bit/sec. and 14.8K bit/sec. to 56K bit/sec. at each branch and switching from analog to digital technology.

We wanted to contract with one vendor to stage the pieces, load them with our software, deploy the branch wiring, deploy the servers, upgrade the telecom infrastructure and install the teller and platform PCs.

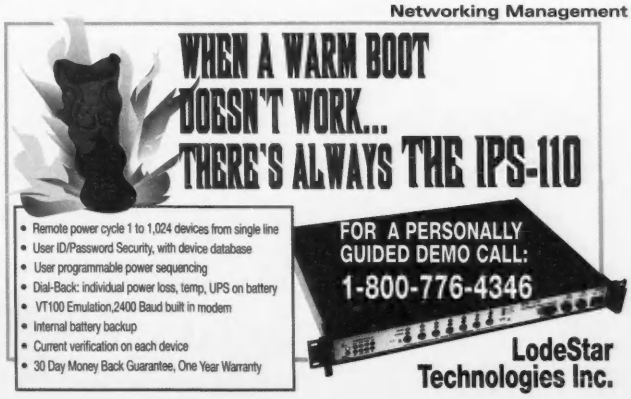
SWICK: A number of things were set by corporate standards and a number were negotiable. The PCs had to use an Intel chip set. The solution had to be client/server-based, use OS/2 and run under [Novell's] NetWare, plus it had to conform to our telecom standards. The integrator could partner with its own PC suppliers as long as they met our standards.

CW: HOW DID YOU EVALUATE THE VENDOR RESPONSES?

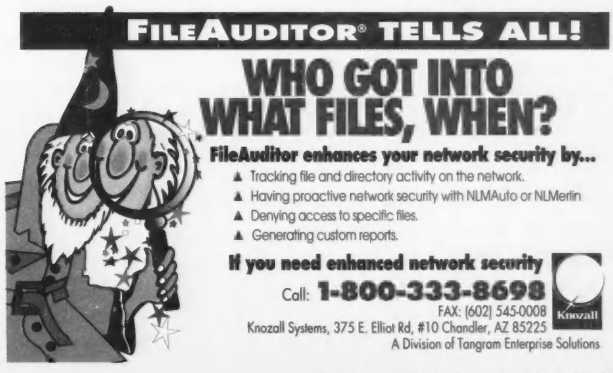
SWICK: On the deployment, we looked for experience with client/server and retail banking, and we considered the overall quality of the response in terms of approach, test-lab certification and customer references. Respondents had to validate things such as how many hours per branch the installation would require and the branch wiring costs based on the number of locations. In field engineering, we looked at vendor experience and staff qualifications. ■

Goff is a freelance writer in New York.

Networking Management



Networking Management Tools



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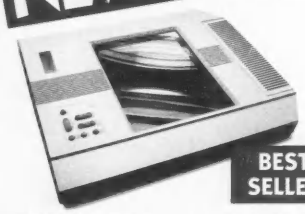

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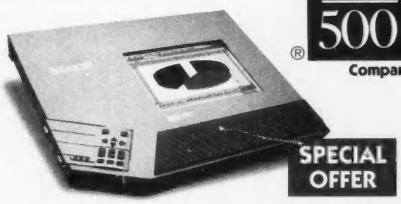

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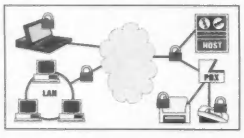

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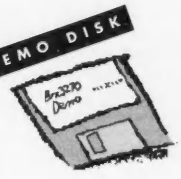

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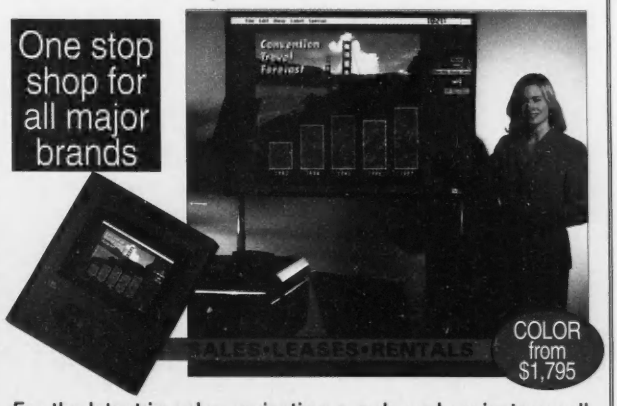

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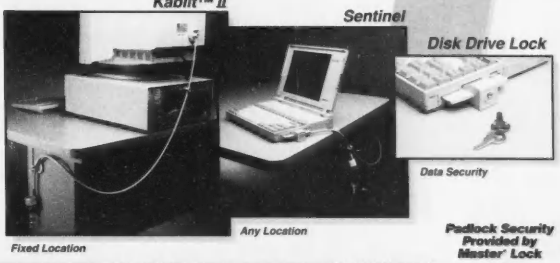

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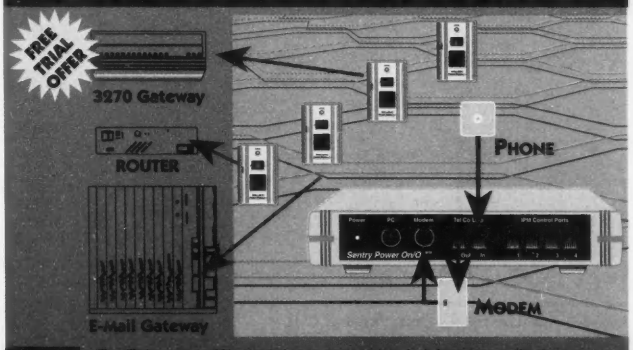

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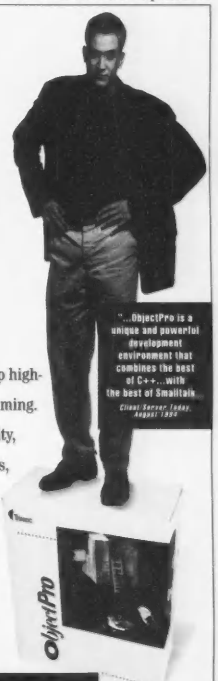

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RFP 2677 due Friday, February 10, 1995 @ 3:30 P.M. for the acquisition of microcomputer-based adult basic literacy and workplace skill building educational software for the Mississippi Department of Human Services, Department of Jobs, Opportunities and Basic Skills. No Charge. An optional bidder's conference will be hosted Thursday, January 19, 1995 at 10:00 A.M. at the Mississippi Department of Human Services.

RFP 2680 due Tuesday, February 28, 1995 @ 3:30 P.M. for the acquisition of a turn-key system including applications software, system hardware, operating system software, installation, training, and support services for the implementation of a client information management system for three regional ICF/MR facilities of the Mississippi Department of Mental Health. A mandatory pre-bid conference will be held Tuesday, January 31, 1995 at 1:30 P.M. at CDPA in Jackson, Mississippi. $50 Charge. A written request with payment is required for RFP's with a charge. No phone requests. Acceptable forms of payment are: corporate check on a MS bank, certified check or POSTAL MONEY ORDER made out to CDPA. No cash or out-of-state checks. CDPA reserves the right to reject any/all bids and to waive informalities.

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Jan. 13 Stock Ticker

Gainers

Percent

Proteon Inc.	24.4	NetFrame(L)	-20.0
Rasterops	22.8	ViewLogic Systems(L)	-19.8
Data Switch Corp.	22.5	Platinum Software	-18.6
Zeos International Ltd.	21.5	Ross Systems	-14.6
Parametric Technology	20.3	MICOM Communications Corp.	-11.4
Radius Inc.	19.0	Computer Network Tech.	-10.9
Borland Int'l. Inc.	17.0	Corel Corp.	-10.6
Interleaf Inc.	16.7	Xircom	-9.9

Dollar

Xerox Corp.	7.50	FORE Systems Inc.	-4.25
Parametric Technology	6.63	Autodesk Inc.	-3.25
US Robotics	6.13	NetManage Inc.	-3.00
ITT Corp.	5.00	Progress Software Corp.	-2.38
Texas Instruments	4.75	Platinum Software	-2.25
Motorola Inc.(H)	4.25	ViewLogic Systems(L)	-2.00
Compaq Computer Corp.	4.25	Xircom	-1.75
Xilinx	4.25	NetFrame(L)	-1.50

HARDWARE COMPANIES, INCLUDING COMPAQ COMPUTER CORP., INCREASED FOLLOWING REPORTS THAT ANALYSTS EXPECT MOST COMPUTER MAKERS TO REPORT STRONG FOURTH-QUARTER REVENUE.

IDGDirectory Almanac

IPOs on the rise

An upswing is finally under way in the number of initial public offerings (IPO) from the high-technology sector.

Twelve companies with deals valued at more than $50 million went public in the fourth quarter of 1994, according to Technology Partners, Inc. in New York. After a steady decline in IPOs during the past three quarters, even this slight increase is a sign the industry may be pulling out of tough market conditions.

The chip industry fared well, bringing five new stock issues for companies that manufacture semiconductors or are related to the chip industry. Steve Szirom, executive editor of "Semiconductor Industry and Business Survey," a newsletter in San Francisco, said renewed interest in chips spurred IPOs in that sector. — *Erin Callaway*

Out of the drought

Renewed interest in the chip industry contributed to the increase in new offerings in the fourth quarter

	Ticker	IPO date	IPO price	Jan. 13 price
Applied Voice Technology, Inc.	AVTC	12/8/94	13	17 1/2
Aspen Technology, Inc.	AZPN	10/25/94	13	19 3/4
Micrel Semiconductor, Inc.	MCRL	12/9/94	9	14 3/4
Micro Linear Corp.	MLIN	10/13/94	8 1/2	8 1/4
Microtec Research, Inc.	MTEC	12/15/94	8	12 1/4
Netcom On-Line Communications Corp.	NETC	12/15/94	13	23 1/4
Ortel Corp.	ORTL	10/20/94	13	24 1/8
Security Dynamics, Inc.	SDTI	12/14/94	16	20 1/8
SGS Thomson Microelectronics, Inc.	STM	12/8/94	22 1/4	25 3/4
Shiva Corp.	SHVA	11/17/94	15	37 1/4
Tower Semiconductor, Inc.	TSEMF	10/25/94	14	12
Veeco Instruments, Inc.	VECO	11/29/94	11	9

*Only deals valued at $50M or more are listed

Source: Technologic Partners, Inc., New York

Exch	52-Week Range			Jan. 13 3PM	Wk Net Change	Wk Pct Change
Communications and Network Services						UP 2.62%
OTC	53.25	20.13	3 COM Corp.	50.13	0.88	1.8
NYS	43.38	36.25	AMERITECH Corp.	41.38	1.13	2.8
NYS	57.13	47.25	AT&T	48.75	0.50	1.0
OTC	19.75	12.75	Banyan Systems Inc.	18.88	0.63	3.4
OTC	43.88	18.63	Bay Networks Inc.	32.00	2.38	8.0
NYS	58.38	48.38	Bell Atlantic Corp.	49.63	0.75	1.5
NYS	63.50	50.50	Bellsouth Corp.	54.38	-0.13	-0.2
NYS	21.50	10.00	Bolt, Beranek & Newman	15.00	0.13	0.8
OTC	15.75	9.00	Brooktrout Technology	10.75	-0.13	-1.1
NYS	53.00	33.06	Cabletron Systems	43.63	-0.63	-1.4
OTC	43.00	10.00	Centigram Communications	13.25	-1.00	-7.0
OTC	50.50	21.00	Chipcom Corp.	45.00	-0.38	-0.8
OTC	30.75	18.75	Cisco Systems Inc.	35.63	1.63	4.8
OTC	15.50	6.13	Compression Labs Inc.	8.38	0.56	7.2
OTC	12.38	5.13	Computer Network Tech.	6.13	-0.75	-10.9
OTC	25.75	7.50	CrossComm	13.38	1.75	15.1
OTC	3.06	2.00	Data Switch Corp.	3.06	0.56	22.5
OTC	37.88	17.88	DSC Communications	36.38	2.00	5.8
OTC	71.50	20.00	FORE Systems Inc.	62.00	-4.25	-6.4
NYS	34.88	8.50	General Datacomm Inds.	32.50	-1.13	-3.3
NYS	34.88	29.50	GTE Corp.	30.38	0.25	0.8
NYS	95.97	77.00	ITT Corp.	92.00	5.00	5.7
OTC	28.38	17.25	MCI Commmunications Corp.	18.03	0.16	0.9
OTC	15.75	7.75	MICOM Communications Corp.	7.75	-1.00	-11.4
OTC	12.38	4.50	Microcom Inc.	12.13	0.25	2.1
OTC	10.50	4.00	Netrix Corp.	9.25	-0.50	-5.1
OTC	8.75	3.25	Network Computing Devices	5.00	0.38	8.1
NYS	25.13	7.38	Network Equipment Tech.	25.13	1.38	5.8
NYS	27.13	13.88	Network General (H)	24.88	0.88	3.6
OTC	9.63	6.38	Network Systems Corp.	7.81	0.81	11.6
NYS	68.75	26.50	Newbridge Networks Corp.	37.63	1.13	3.1
NYS	37.75	26.00	Northern Telecom Ltd.	32.88	0.00	0.0
OTC	26.63	13.38	Novell Inc.	18.38	1.25	7.3
NYS	41.38	33.25	Nynex Corp.	36.25	-1.00	-2.7
OTC	30.00	15.50	Octel Communications Corp.	21.75	0.25	1.2
OTC	33.00	10.75	Optical Data Systems Inc. (H)	33.00	3.13	10.5
OTC	7.50	2.13	Penril Data Comm Networks	2.31	-0.06	-2.6
OTC	24.50	10.00	Picturetel Corp.	24.50	1.25	5.4
OTC	7.88	2.13	Proteon Inc.	7.00	1.38	24.4
OTC	14.38	2.75	Racotek Inc.	3.38	0.19	5.9
OTC	11.25	3.75	Retix	4.03	-0.34	-7.9
NYS	23.25	12.44	Scientific Atlanta Inc.	19.63	0.88	4.7
NYS	44.38	36.75	Southwestern Bell Corp.	40.38	-0.50	-1.2
NYS	40.13	25.88	Sprint Corp. (L)	26.50	-0.38	-1.4
OTC	30.38	13.38	Standard Microsystems Corp.	30.13	1.75	6.2
OTC	17.25	6.50	Stratacom Inc.	16.50	2.25	6.6
OTC	15.25	3.88	Telebit Corp.	5.00	0.00	0.0
OTC	46.88	24.00	US Robotics	46.88	6.13	15.0
NYS	44.88	34.63	US West Inc.	36.00	-0.25	-0.7
OTC	28.25	12.75	Xircom	16.00	-1.75	-9.9
OTC	27.00	8.00	Xylogics Inc.	24.25	1.00	4.3
PCs and Workstations						UP 7.30%
OTC	7.50	3.50	Advanced Logic Research	5.00	0.50	11.1
OTC	44.75	24.63	Apple Computer Inc. (H)	44.75	2.63	6.2
OTC	33.00	10.38	AST Research Inc.	15.00	1.38	10.1
NYS	43.63	26.09	Compaq Computer Corp.	43.63	4.25	10.8
OTC	47.38	19.13	Dell Computer Corp.	45.88	0.75	1.7
OTC	25.00	9.25	Gateway 2000 Inc.	24.88	1.88	8.2
NYS	103.63	71.88	Hewlett Packard Co. (H)	103.00	3.00	3.0
NYS	33.13	18.75	Silicon Graphics	32.38	2.38	7.9
OTC	37.63	18.25	Sun Microsystems Inc.	34.94	0.44	1.3
NYS	52.38	30.75	Tandy Corp.	49.13	-0.75	-1.5
OTC	9.88	2.38	Zeos International Ltd.	9.88	1.75	21.5
Large Systems						UP 0.44%
ASE	11.25	5.25	Amdahl Corp.	11.00	0.38	3.5
NYS	8.88	4.38	Convex Computer	8.00	0.50	6.7
OTC	2.75	0.50	Cray Computer	1.22	-0.09	-7.1
NYS	33.75	14.63	Cray Research Inc.	15.50	-0.88	-5.3
NYS	12.00	6.63	Data General Corp.	10.13	0.25	2.5
NYS	37.63	18.25	Digital Equipment Corp.	35.00	0.88	2.6
OTC	6.38	2.44	Encore Computer Corp.	3.09	0.06	2.1
OTC	17.50	6.50	Harris Computer Systems Cor	11.38	-0.13	-1.1
NYS	77.25	51.38	IBM (H)	75.88	0.88	1.2
OTC	17.25	5.38	NetFrame (L)	6.00	-1.50	-20.0
OTC	14.00	3.63	Parallan Computer	3.75	0.00	0.0
OTC	16.50	5.38	Pyramid Technology	14.38	1.88	15.0
OTC	21.25	11.13	Sequent Computer Sys. (H)	19.63	-0.63	-3.1
OTC	6.84	3.13	Sequoia Systems Inc.	4.06	0.13	3.2
NYS	39.88	22.88	Stratus Computer Inc.	36.75	0.00	0.0
NYS	19.13	10.50	Tandem Computers Inc.	18.63	0.88	4.9
OTC	25.50	3.88	TriCord Systems	6.00	-0.25	-4.0
NYS	16.50	8.25	Unisys Corp.	9.63	0.63	6.9
Software						UP 1.97%
OTC	38.50	21.50	Adobe Systems Inc.	31.00	0.50	1.6
OTC	6.38	2.50	American Software Inc. (L)	3.13	0.13	4.2
OTC	41.50	21.88	Autodesk Inc.	35.25	-3.25	-8.4
OTC	3.88	1.75	Bachman Info. Systems	3.88	0.00	0.0
OTC	29.00	20.50	BGS Systems Inc.	24.25	1.25	5.4
OTC	71.00	40.25	BMC Software Inc.	55.25	-0.63	-1.1
OTC	26.25	15.00	Boole & Babbage	26.00	0.25	1.0
OTC	15.88	6.00	Borland Int'l Inc.	7.75	1.13	17.0
OTC	25.00	6.00	Brock Control Systems Inc.	6.75	-0.25	-3.6
OTC	4.00	1.78	CE Software	2.38	0.00	0.0
ASE	10.34	6.25	Cheyenne Software Inc.	14.63	0.50	3.5
OTC	18.88	9.75	Cognos Inc.	17.75	1.25	7.6
NYS	52.50	27.38	Computer Associates (H)	52.50	4.25	8.8
NYS	5.38	2.50	Computervision Corp.	4.25	0.25	6.3
OTC	49.25	25.00	Compuware Corp.	35.81	-0.19	-0.5
OTC	14.75	9.00	Comshare Inc.	13.50	0.00	0.0
OTC	16.75	10.66	Corel Corp.	12.52	-1.48	-10.6
OTC	14.25	7.25	Dataware Technologies Inc.	12.00	0.75	6.7
OTC	6.75	2.25	Easel Corp.	3.38	0.38	12.5
OTC	29.25	14.25	Filenet Corp.	27.50	1.00	3.8
OTC	23.50	3.00	4th Dimension	4.13	-0.13	-2.9
OTC	18.00	8.13	Frame Technology	16.75	1.25	8.1
OTC	33.50	11.50	FTP Software Inc.	33.25	2.50	8.1
OTC	11.00	7.00	Group I Software	9.25	0.00	0.0
OTC	31.75	6.75	Gupta	12.88	0.25	2.0
OTC	10.88	5.13	Hogan Systems Inc.	5.75	-0.25	-4.2
OTC	40.25	18.00	IMRS	37.00	1.00	2.8
OTC	39.75	15.00	Information Resources	14.50	-0.63	-4.1
NYS	33.00	14.25	Informix Corp. (H)	31.75	1.00	3.3
OTC	11.25	7.38	Intergraph Corp.	9.88	0.38	3.9
OTC	8.75	2.50	Interleaf Inc.	3.50	0.50	16.7
OTC	18.25	8.63	Intersolv Inc.	17.00	0.50	3.0
OTC	73.25	27.00	Intuit Inc.	69.25	1.25	1.8
OTC	36.00	19.00	Legent Corp.	36.00	3.00	9.1
OTC	86.50	29.75	Lotus Development	42.88	3.00	7.5
OTC	17.75	4.38	Magic Software Enterprises	5.88	0.00	0.0
OTC	15.50	6.00	Manugistics Group Inc.	9.13	-0.13	-1.4
OTC	27.50	14.75	MapInfo Corp.	25.13	1.38	5.8
OTC	7.13	1.44	MathSoft	2.13	-0.13	-5.6
OTC	20.25	6.50	McAfee Associates	18.25	0.44	2.5
OTC	17.25	9.38	Mentor Graphics	14.38	-0.25	-1.7
OTC	20.00	11.50	Micro Focus	12.50	-0.13	-1.0
OTC	11.63	4.63	Micrografx Inc.	7.13	-0.50	-6.6
OTC	65.13	39.00	Microsoft Corp.	62.50	2.13	3.5
OTC	45.00	11.25	NetManage Inc.	38.50	-3.00	-7.2
OTC	46.50	26.25	Oracle Corp.	43.13	0.13	0.3
OTC	39.25	21.50	Parametric Technology	39.25	6.63	20.3
OTC	24.50	13.38	ParcPlace Systems Inc.	21.50	1.50	7.5
OTC	39.50	13.00	Peoplesoft	36.25	2.00	5.8
OTC	8.13	4.00	Phoenix Technologies	8.00	0.25	3.2
OTC	84.00	35.50	Powersoft	81.25	3.50	4.5
OTC	15.00	3.50	Platinum Software	9.88	-2.25	-18.6
OTC	23.75	10.00	Platinum Technology	22.63	0.38	1.7
OTC	56.75	27.00	Progress Software Corp.	40.63	-2.38	-5.5
OTC	4.13	1.88	Quarterdeck Office Sys.	3.06	-0.06	-2.0
OTC	24.00	9.50	Rainbow Technologies Inc.	15.00	0.13	0.8
OTC	9.25	2.00	Rasterops	3.88	0.72	22.8
OTC	7.13	2.88	Ross Systems	4.38	-0.75	-14.6
OTC	21.50	0.50	Sapiens Intl. Corp. N.V.	0.97	0.09	10.7
OTC	27.25	9.75	Softkey International Inc.	24.75	0.44	1.8
OTC	8.38	3.00	Software Publishing Corp.	5.50	0.50	10.0
OTC	10.00	5.00	State of the Art	7.88	-0.50	-6.0
NYS	36.88	25.00	Sterling Software Inc.	36.13	1.63	4.7
OTC	16.50	3.63	Struct. Dynamics Research	5.63	-0.13	-2.2
OTC	57.00	35.25	Sybase Inc.	51.25	2.25	4.6
OTC	19.63	9.88	Symantec Corp.	17.25	0.06	0.4
OTC	48.75	33.00	SynOpsys	46.25	2.25	5.1
OTC	18.00	10.63	System Software Assoc.	17.38	1.88	12.1
OTC	6.25	3.25	Trinzic Corp.	5.63	-0.13	-2.2
OTC	30.00	8.13	ViewLogic Systems (L)	8.13	-2.00	-19.8
OTC	23.25	12.25	VMark Software Inc.	17.25	0.50	3.0
OTC	13.25	5.50	Walker Interactive Systems	7.25	0.00	0.0
OTC	60.00	29.25	Wall Data Inc.	39.25	-1.00	-2.5
Semiconductors						UP 5.69%
NYS	31.75	18.50	Advanced Micro Devices	31.38	4.13	15.1
NYS	24.50	16.34	Analog Devices Inc.	22.13	-0.13	-0.6
OTC	37.63	17.94	Atmel Corp.	36.13	3.31	10.1
OTC	8.50	3.63	Chips and Technologies (H)	8.38	0.50	6.3
OTC	44.63	21.88	Cirrus Logic	26.75	1.75	7.0
NYS	25.13	13.75	Cypress Semiconductor Corp.(H)	25.00	2.75	12.4
NYS	20.13	13.38	Dallas Semiconductor	16.00	0.38	2.4
OTC	31.50	14.75	Integrated Silicon Systems	29.00	-0.50	-1.7
OTC	73.50	56.00	Intel Corp.	68.00	3.63	5.6
NYS	45.38	16.75	LSI Logic Corp.	42.88	4.13	10.6
OTC	20.13	14.00	Lattice Semiconductor	17.50	0.38	2.2
NYS	46.00	21.56	Micron Technology	46.00	3.38	7.9
NYS	63.00	42.13	Motorola Inc. (H)	61.88	4.25	7.4
NYS	25.00	14.38	National Semiconductor	20.00	0.88	4.6
OTC	18.75	6.75	Sierra Semiconductor (H)	17.75	0.25	1.4
NYS	89.50	63.25	Texas Instruments	75.88	4.75	6.7
OTC	16.38	10.25	VLSI Technology	12.63	0.63	5.2
OTC	10.00	1.78	Weitek	2.31	0.25	12.1
ASE	20.38	10.75	Western Digital Corp.	16.50	-0.63	-3.6
OTC	62.00	29.00	Xilinx	61.00	4.25	7.5
OTC	37.75	24.75	Zilog Inc.	31.75	0.25	0.8
Peripherals and Subsystems						UP 1.57%
OTC	30.50	14.50	American Power Conversion	16.38	-0.81	-4.7
OTC	27.25	18.25	Banctec Inc.	21.00	-0.75	-3.4
OTC	5.75	3.25	Cambex Corp.	4.00	0.38	10.3
ASE	5.00	1.38	Cognitronics Corp.	2.25	0.00	0.0
OTC	20.50	9.00	Conner Peripherals	9.50	-0.63	-6.2
OTC	54.00	9.75	Creative Technologies Inc.	13.44	-0.81	-5.7
OTC	11.00	3.50	Data Race Inc.	5.75	0.25	4.5
ASE	9.00	4.13	Dataram Corp.	7.13	-0.13	-1.7
NYS	24.00	12.38	EMC Corp.	22.13	0.50	2.3
OTC	14.25	3.13	Emulex Corp. (H)	14.25	0.38	2.7
OTC	21.00	11.25	Evans & Sutherland	12.50	-0.25	-2.0
OTC	24.00	14.00	Exabyte	19.06	-0.94	-4.7
OTC	26.00	2.03	Intelligent Info. Systems (L)	2.03	-0.22	-9.7
OTC	4.94	1.59	Iomega Corp. (H)	4.94	0.69	16.2
OTC	9.75	2.13	IPL Systems Inc.	2.25	-0.13	-5.3
OTC	29.25	15.75	Komag Inc. (H)	28.50	1.50	5.6
OTC	8.63	2.63	Maxtor Corp.	6.00	0.56	10.3
OTC	11.13	4.88	Micropolis Corp. (H)	9.81	-0.19	-1.9
OTC	20.50	9.25	Pinnacle Micro Inc.	11.00	-0.13	-1.1
OTC	28.75	4.31	Printronix Inc.	24.75	0.25	1.0
NYS	10.75	6.88	QMS Inc.	8.75	-0.25	-2.8
OTC	20.25	11.63	Quantum Corp.	14.88	0.00	0.0
OTC	18.25	7.38	Radius Inc.	12.50	2.00	19.0
NYS	15.13	6.38	Recognition International	8.38	-0.75	-8.2
OTC	6.88	4.13	Rexon Inc.	5.25	0.25	5.0
OTC	28.75	18.63	Seagate Technology	24.63	0.00	0.0
OTC	41.50	25.00	Storage Technology	30.88	3.38	12.3
NYS	40.50	24.88	Tektronix Inc.	36.88	2.13	6.1
NYS	112.75	90.63	Xerox Corp.	106.13	7.50	7.6
Services						UP 1.89%
OTC	19.88	12.06	American Mgmt. Systems	19.00	0.38	2.0
NYS	4.25	1.75	Anacomp Inc.	2.00	0.13	6.7
OTC	21.50	14.50	Analysts Int'l.	20.50	-0.75	-3.5
NYS	60.75	47.63	Auto Data Processing	60.75	2.25	3.8
OTC	23.75	14.00	Cambridge Tech. Partners	23.25	1.13	5.1
NYS	27.75	20.13	Ceridian Corp. (H)	27.00	0.00	0.0
NYS	24.25	17.75	Comdisco Inc.	22.38	-0.13	-0.6
OTC	16.38	8.00	Computer Horizons	16.38	1.38	9.2
NYS	52.63	31.63	Computer Sciences	49.25	-0.13	-0.3
NYS	10.38	6.75	Computer Task Group	8.38	0.13	1.5
NYS	22.25	6.75	CompUSA Inc.	16.25	0.13	0.8
OTC	11.38	5.38	Control Data Systems Inc.	6.38	0.25	4.1
OTC	12.13	6.13	Egghead Discount Software	11.25	0.13	1.1
NYS	39.50	28.13	General Motors E (EDS)	38.63	-0.25	-0.6
OTC	21.00	6.88	Inacom Corp.	7.88	0.69	9.6
OTC	27.50	7.50	Intelligent Electronics	9.50	0.69	7.8
OTC	22.50	6.25	Merisel	7.38	-0.75	-9.2
OTC	32.50	9.25	Microage Inc.	12.19	0.19	1.6
OTC	42.00	28.50	Paychex (H)	41.00	0.50	1.2
NYS	47.75	25.75	Policy Management Sys.	42.00	2.88	7.3
NYS	28.25	19.75	Reynolds and Reynolds	23.63	0.00	0.0
OTC	27.00	16.75	SEI Corp.	19.00	0.25	1.3
OTC	34.50	22.13	Shared Medical Systems	33.63	1.13	3.5
OTC	8.13	4.00	SHL Systemhouse	5.44	-0.19	-3.3
OTC	23.50	9.25	Software Spectrum Inc.	15.63	-0.13	-0.8

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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THEY KEEP GOING ON AND ON ABOUT HOW WE KEEP GOING ON AND ON.

Dell Latitude

Dell's Latitude series of laptops is breaking battery life records. Faster processors and color LCDs have tend...

...can't prove or disprove those claims. All we can say is that we used the notebook for four solid hours and still had more than 25% of the charge left, according to Dell's Windows utility that measures the battery charge. We haven't yet had enough time to drain the battery in one sitting. That says much for the efficiency of lithium-ion technology.

Laptop Buyers Guide
Vol. 12, No. 9, p. 26, p. 86

Well, listen up you beleaguered notebook nomads: I have found the Holy Grail. It's a full-featured, high-powered, name-brand notebook PC that really gets six hours of battery life and maybe more, depending on your usage pattern. It isn't ... the most ...

...ON. Of the two, the Dell Latitude XP stands out, in my view, and not only because of its awesome battery life, made possible by a new lithium-ion battery technology and especially clever hardware and software that micromanages the machine's use of power.

Walter Mossberg
Wall Street Journal, 9-8-94

...the road. The latest in the Latitude line—the XP—is more like a BMW. It's a hot model just off the showroom floor that's bound to draw some oohs and ahhs for its style and performance.

With the recent arrival of a...

Windows Magazine
10-94, p. 124

Longest Battery Life Ever: Dell Computer's new Latitude XP notebooks are a workaholic's dream. A preproduction DX2-50 model with a 9.5-inch active-matrix display and power management enabled ran for an astounding 7 hours, according to rundown tests by the PC World Test Center. Add to that config...

PC World, 10-94, p. 64

extended ... weight, and for these guys, compromise isn't an option.

Enter Dell's Latitude XP, the fastest, longest-lasting 486 notebook our lab has ever seen. Powered by Intel's DX4/100 processor and equipped with state-of-the-art lithium ion batteries and up to 36MB of RAM and 500MB of disk space, it rivals most desktop machines.

Extra Life All that power would be beside the point if the system could run for only a couple of hours. You're guaranteed not to have that prob... with this machine. While ...

PC Computing
10-94, p. 57

When we introduced the Dell® Latitude XP™ notebook, we knew its extended battery life would evoke quite a few comments from the industry experts. However, recently they have been having field days at their keyboards.

Perhaps all of this hullabaloo is due to the Latitude XP notebook's workhorse lithium ion battery. Or perhaps it's due to the miserly power-conservation software, which intelligently adjusts energy consumption. A unique feature that helps this already powerful battery perform even more efficiently.

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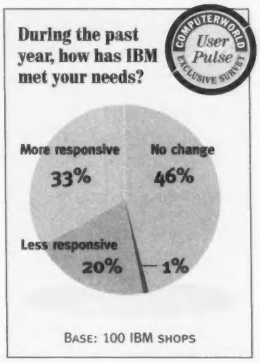
IBM revamp cleans house

CONTINUED FROM PAGE 1

customer base," said Rich Malone, principal in charge of data processing at Edward D. Jones & Co., a brokerage in Maryland Heights, Mo. Even IBM salespeople "aren't always sure where to go to get answers," he added.



Malone and several other users noted that the reorganization has to play itself out before its real impact can be measured.

Same old, same old

In fact, a substantial number of users surveyed last week by *Computerworld* said they have not seen much change in IBM under Gerstner's stewardship thus far (see chart page 1).

"I like the idea of the recentralization, [but] I'm not happy about some of the people that have left, and I'm not in a hurry to jump on the bandwagon," said M. Lewis Temares, vice president of information resources and dean of the engineering college at the University of Miami in Coral Gables, Fla. Temares added that IBM still seems to be in a state of turmoil.

Still optimistic

Most of the dozen customers interviewed by *Computerworld* last week said they still expect Gerstner's latest overhaul to produce positive change by removing some organizational hurdles.

"It looks like they're putting the 'I' back into IBM," said Anne Caluori, president of the IBM-oriented Share, Inc. user group, referring to the new global focus that Gerstner is trying to instill. "One of our members' greatest struggles has been dealing with an IBM that looks differently at the U.S. than it looks at Europe," she added.

Gerstner reversed the plan of predecessor John Akers to turn IBM into a collection of autonomous business units shortly after he replaced Akers in 1993.

Use it or lose it

Both users and analysts pointed to that reversal of direction as the key decision Gerstner has made thus far.

"IBM is almost a $70 billion company, and they better take advantage of that size," said George Sekeley, president of CSX Technology, Inc., the information systems unit of CSX Corp. in Richmond, Va.

Earlier steps the company took included the elimination of IBM's separate lines of business, the combination of all server activities under a single executive and the formation of two units that are developing common operating system technology and hardware components for IBM's different computers.

RESTRUCTURING IBM

Because you demanded it

According to a May 1993 *Computerworld* Database Division survey, some 143 out of a total of 191 IS managers said that in order for Chairman Louis Gerstner to succeed, it would be important or very important for him to shake up the IBM executive ranks.

Fallout from reorganization flurry will have far-reaching impact

The additional changes implemented last week cut a wide swath through IBM's organization and will have widespread implications. They include the following:

- **Winners and losers.** Ellen Hancock, who was in charge of networking and system software operations, and Robert LaBant, who was running North American sales, abruptly left the company after Chairman Louis V. Gerstner gave the top jobs in the new software and worldwide sales units to other senior vice presidents.

Ned Lautenbach *will head up worldwide sales units*

The software slot went to John Thompson, who had been in charge of IBM's server group. Sales will be run by former international sales executive Ned Lautenbach. Thompson's server job went to Nicholas Donofrio, who was running IBM's mainframe and parallel processing division.

- **An attempt at software resuscitation.** IBM may still be far and away the world's largest software vendor, but Gerstner said in a memeo that it has "not always leveraged our vast resources" as well as it should have, leaving the likes of Microsoft Corp. and Novell, Inc. to set the software pace.

Beyond the eternal questions about the future of OS/2, "nothing approaching a home run" has come out of IBM's software laboratories recently, noted David Andrews, managing partner at D. H. Andrews Group, Inc., a consulting firm in Cheshire, Conn. Gerstner "is right to be impatient and to put his smartest gunslinger on the problem," Andrews said of Thompson.

- **The separation of networking hardware and software.** Those were split by Gerstner, with software going under Thompson and hardware falling under another group, which includes IBM's semiconductor and storage divisions. Analysts said that may make sense but cautioned that IBM must ensure that the two networking units stay in touch with each other.

Nicholas Donofrio *takes over leadership of IBM's server unit*

- **The breakup of IBM's Large Scale Computing division.** Separate divisions were formed for System/390 mainframes and the SP2 parallel processor. Charlie Burns, an analyst at Gartner Group, Inc. in Stamford, Conn., said that should raise the commercial profile of the SP2, which "always got second dibs on staff and funding" when it was in the same division with mainframes.

— Craig Stedman and Thomas Hoffman

OS/2 watchers choose to look at bright Blue side

By Ed Scannell and Julia King

Despite rumors about IBM's waffling in its support of OS/2, some observers last week saw the company's organizational changes as positive rather than negative for the beleaguered desktop operating system.

In bringing the Personal Software Products division closer together with the company's Software Solutions and Networking Software units under John Thompson, some say IBM can sharpen its development and marketing focus for OS/2.

"I think the marketing of OS/2 will escalate. It's going to be a focal point for their thrust across the company. Thompson must make it a success," said Frank Dzubeck, president of Communications Network Architects, Inc., a consultancy in Washington.

IBM's John Thompson *appears committed to the long-term success of OS/2*

"If you had asked me [about OS/2] eight months ago, I would have been more questioning of it than I am now," said Anne Caluori, president of the IBM-oriented Share, Inc. user group. "Skepticism was much more prevalent then. But everything we hear about it now is very solid."

More than a year ago, IBM Chairman Louis V. Gerstner said publicly that OS/2 was one of the two or three most strategic pieces of software for IBM for the remainder of the decade.

Divided loyalty to OS/2

Yet some observers say not all of IBM's division managers were committed to seeing OS/2 succeed. They said the latest reorganization may eliminate some of that disinterest and inspire more universal loyalty to OS/2.

"The concept I most hate within IBM is 'ownership' of a given product by one group," said Bob Holmes, senior technical consultant at Southern California Gas Co. in Los Angeles. "No one owns a product except the customer. IBM needs more managers [who] see the need for multiple groups pulling together."

"There has been a lot of foot-dragging across the company with OS/2, such as the PC company," said Will Zachmann, president of Canopus Research, Inc., a market researcher in Duxbury, Mass. "Gerstner [with this reorganization] wants IBM not to be a collection of semi-independent pieces but a company with a centralized strategy."

Rumors are just that

Still, with the sudden departure of IBM executives Ellen Hancock and Robert LaBant last week, rumors persisted that Gerstner was contemplating high-level changes in the Personal Software Products unit. Gerstner reportedly is growing impatient with the slow progress OS/2 is making against archrival Windows, industry sources said.

IBM flatly denies such rumors, insisting that Gerstner and many other top executives are wholeheartedly committed to the product's success.

"I know that John [Thompson] is very committed to the long-term success of OS/2. We haven't always leveraged the development efforts across divisions, but this can only help," an IBM spokesman said.

Wysiwyg

Hi, Mom

For those who want to add something different to their screen-saver collections, Personal Screen Images in Fair Oaks, Calif., (800 PC-VIEWS) has introduced Personalize It. You can send pictures of loved ones, pets, vacation spots and more to the company, and it will send you a screen-saver program of the image for $24. For those who want an even closer look at Fido, an optional zoom feature is available.

Readers comment on Microsoft's fictional purchase of the Vatican:

Would the CEO of the newly created company have the title "Pearly Gates?"

Steve Goswell, San Francisco

Microsoft and the Catholic Church are announcing the Advent of a new computer system, a Mass processor with Host storage. All I/O buses will be microcoded, proving that all roads lead to ROM. Production of the new system will begin at Trinity River, Texas, with components manufactured in Providence, R.I., and Corpus Christi, Texas.

James Landau, Linwood, N.J.

Important occupational computer files

Rabbit breeders use a file called **whatsup.doc**
Physicians use one called **howya.bin**
Chiropractors always look for **aiken.bak**
Hostage negotiators make sure to run **jusstay.com**

Source: alt.humor.puns Internet newsgroup

WYSIWYG COMPILED BY TIM OUELLETTE. ILLUSTRATION BY DAVID MARSHALL.

Inside Lines

An Apple a day keeps the Oracle away

What's more sensitive than a man of the '90s? The stock market. Apple's stock price jumped last week after a Wall Street analyst was quoted saying he thought it made more sense for IBM, not Oracle, to buy the company. The analyst said he had no information that IBM would do so, but the market hopped anyhow. In the meantime, Oracle CEO Larry Ellison plans to fly to Amsterdam at the end of this month to meet with counterparts at Matsushita and Philips Telecommunications N.V. to plan a takeover of Apple, according to one Oracle insider. Oracle officials declined to comment on the entire issue of a hostile Apple takeover.

Any Baysis for Big Blue?

Several sources reported hearing rumors last week that IBM may be looking to buy Bay Networks, the company formed from the merger of Wellfleet and SynOptics. Insiders at both Big Blue and Bay Networks categorically denied such talks, however. "If you were IBM, wouldn't you want to wait and see if you'd be buying a boat anchor or *The Queen Mary*?" asked one Bay Network insider.

Practically impractical

Hewlett-Packard has a reputation for clear thinking, which has some wondering about its high-priced foray into the personal digital assistant (PDA) arena. Sources say HP's relationship with PDA operating system vendor Geoworks will bear fruit in October with a 10 oz., handheld, pen-based organizer. It will feature software from HP's 200LX handheld (excluding Lotus' 1-2-3) customized to run under Geoworks' Geos operating system, Palm Computing's Graffiti handwriting-recognition software and a Type II PCMCIA slot and will cost about $399. But some analysts say the $399 price is too high because Tandy's Geos-based Zoomer now sells at $199.

So what's a foot of rain?

California's torrential downpours didn't rain on Next Computer's parade last week. CEO Steve Jobs convened a company meeting in Napa Valley, even though the wine country was underwater. The two-day confab brought together sales and product managers to yak about their successes in 1994 and plans for 1995. Users seeking tech support, though, felt all wet when they called Next's hotline last Monday and Tuesday. They got a recording that said no one would be available until mid-day Wednesday to help.

The key chain to Intel's heart

Well, maybe not all Pentiums make good CPUs, but at least they make one helluva snazzy key chain. In case you're wondering where all those millions of recalled Pentium chips have gone, look no further than the nearest junk jewelry shelves. Apparently, Intel's prestigious Pentium chips are likely to succumb to the fate of other defective chips, which turn up as key chains, tie clips, lapel pins and so forth. Intel had said it would grind the chips to dust.

So who's laughing, already?

The latest buzz on the Microsoft Windows 95 grapevine is that the August date is "a joke." Look for Windows 95 — maybe renamed Windows 96 — closer to Comdex/Fall '95, said one well-placed beta tester last week. While a large number of beta users are reporting few problems, others are finding that the second major beta still has serious problems that need to be fixed before it can ship. These include a lack of drivers for some video cards, such as those that use the ATI chip set, no remote Microsoft Mail support and incomplete Plug and Play support. Also, WordPerfect 6.1 has problems with the Windows 95 "registry," and the system flat won't run Lotus' Approach database, the tester said. Oh well, slip happens.

According to The New York Times, *Bill Gates' 40,000-sq.-ft. house, now under construction, is being delayed a year. Gee, maybe the windows won't be ready until the end of 1995? If you come across any other illuminating news tidbits or tips, let* Computerworld *in on it by calling our 24-hour voice-mail tip line at (508) 820-8555 or our toll-free number at (800) 343-6474. News Editor Maryfran Johnson can be reached by phone at (508) 820-8179 and via the Internet at mjohnson@cw.com.*

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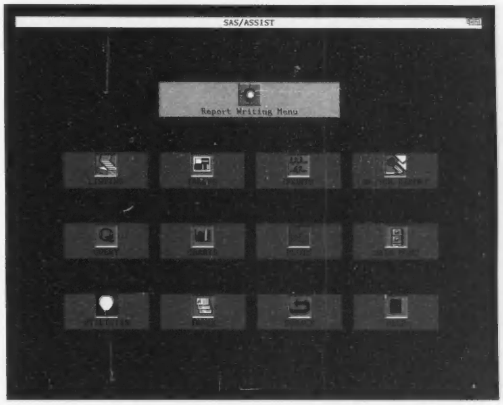

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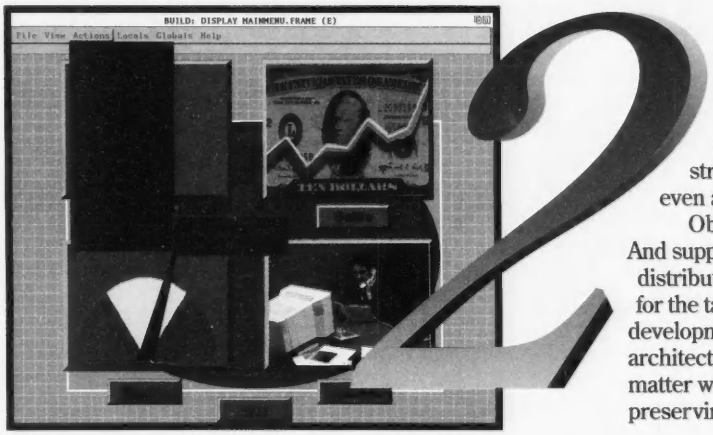

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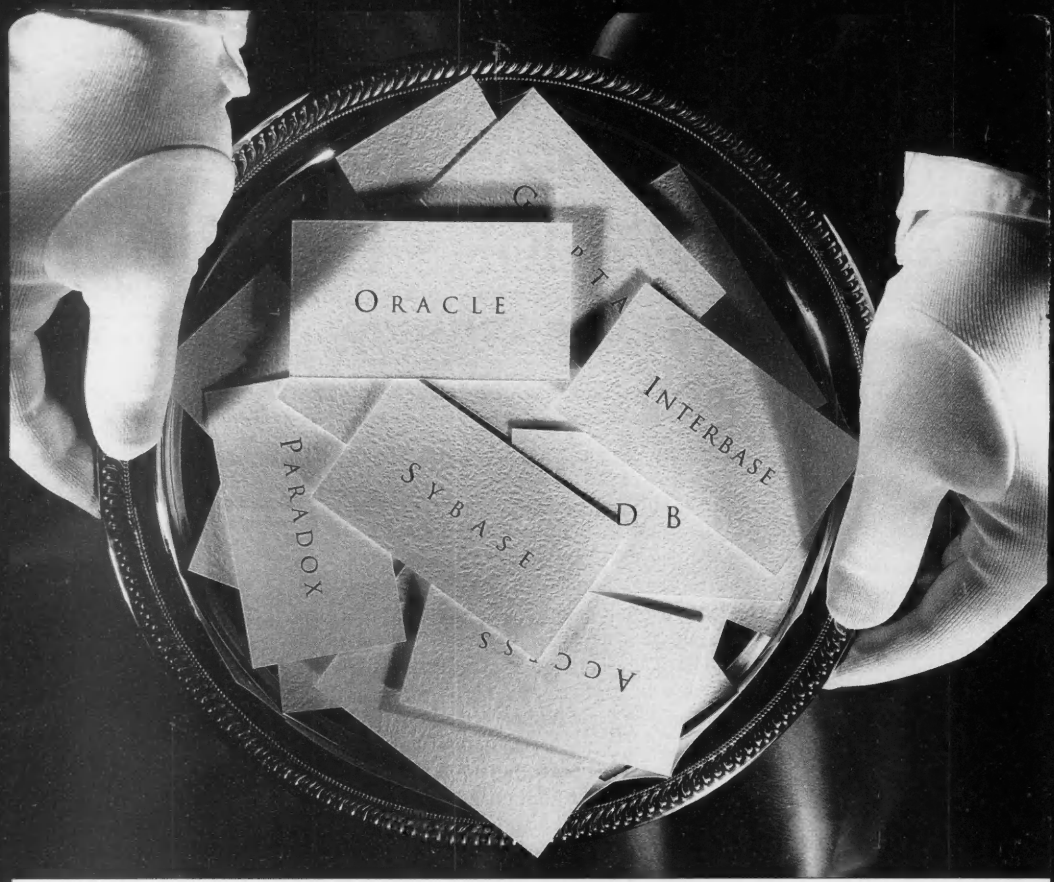

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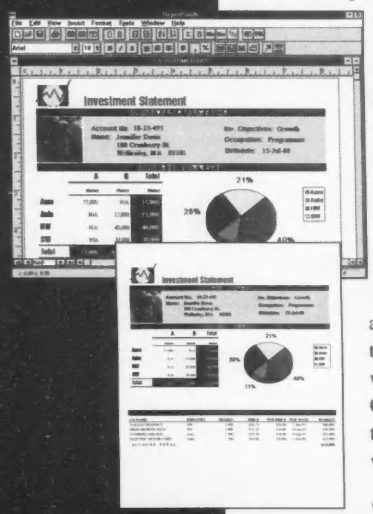

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